THE

INSTRUCTIVE READER,

CONSISTING OF

MORAL INSTRUCTION, DESCRIPTIONS OF NATURAL OBJECTS, PLACES, MANNERS:

AND OTHER INSTRUCTIVE AND USEFUL INFORMATION FOR THE YOUNG.

BY REV. R. H. THORNTON.

SECOND EDITION.

THIS WORK CONSTITUTES No. IV. OF THE PRACTICAL AND PROGRESSIVE SYSTEM, BY P. & R. H. THORNTON.

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PREFACE TO THE FIRST EDITION.

The present Work owes its existence chiefly to the following circumstances: The Compiler, having been in very early life much conversant with the business of Teaching, both in Families and Public Institutions, became early impressed with the immense importance of Books really adapted to the capacities and wants of the rising generation. To this subject, much attention has of late years been given, and great improvement has accordingly been made in the School Books of all countries where the importance of Education is duly appreciated. The interests of Canadian youth, however, have in this respect been lamentably neglected. To this fact the Compiler had his attention often painfully turned when discharging the duties of Chairman of the School Commissioners, during the past two years; both from the almost universal want of interest manifested by the pupils in their reading lessons, as well as from the frequent complaints of Teachers respecting the inadaptation of the books commonly in use, to the mental capacities and local circumstances of those under their care. It has been justly observed, that, "the great object of all instructions should be, to form GOOD MENTAL HABITS, to accustom children to discern between good and evil, and to teach them not only to acquire knowledge, but to *apply* it." All School Books, then, should have a direct tendency to produce those results. But what useful ideas, it may reasonably be asked, will they derive, or what good habits can they be expected to form, from such books as present a copious selection of purely "Didactic and Argumentative pieces," Speeches in the Roman Senate or the British House of Lords, &c.? Not only are there many local circumstances rendering such subjects uninteresting to the youth of this Province, but from their very nature, they are far above the capacity of those who are compelled to learn to *pronounce* them; to *understand*, does not seem to have been thought of. An anxious desire to remove these serious objections and promote the interests of the young in this Province, is the object aimed at in THE INSTRUCTIVE READER—by giving prominency to such subjects as may at once interest and communicate instruction respecting the duties to be practiced or the vices to be shunned in early life, or prepare for occupying honourably and usefully those places the youth of to-day are soon to fill as members of Society. How far the object in view has been attained, it remains for those to judge, who are engaged in the instruction of youth, or interested in promoting their welfare. To a *careful examination*, it is, to say the least, entitled, inasmuch as it will be found to bear comparison in point of interest and usefulness, with anything of the kind yet before the Public; it is hoped that it may be found even to meet that *desideratum*, which is by all practical and intelligent Teachers allowed to exist in this country.

While a free use has been made of a very extensive collection of the School Books most approved in different parts of the world, many of the pieces have never appeared in any selection of the kind, and several are new compilations which were found needful in order to present important and interesting information in a shape adapted to the youthful capacity. For the same reason, considerable liberties have been taken with the phraseology of others, whenever it seemed necessary for this important object.

WHITBY,
8th *March*, 1844.

PREFACE TO THE SECOND EDITION.

In presenting to the Public another Edition of the INSTRUCTIVE READER, the Author, grateful for the very favourable reception of the work, has bestowed great attention upon its revision, to render it, if possible, still more worthy of notice. Not only have the typographical errors been carefully corrected, but a very decided improvement has been introduced, in reference to the mode in which the Derivatives are presented. Instead of the part of the former Appendix devoted to them, they are now dispersed at the heads of the different Sections to which they respectively belong. By this means, they will not only prepare for more thorough understanding of the Lessons in which they occur, but will be more at hand for reference on the part of either Teacher or Pupil.

Although this impression is got up in a superior style, the work is presented at the former low price.

The numerous testimonies, of both Parents and Teachers, which have been furnished, of its adaptation to the moral and intellectual training of the young, constitute the highest reward which can be derived from it by

THE AUTHOR.

TORONTO,
15th *July*, 1845.

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DIRECTIONS TO TEACHERS.

Those who are desirous to communicate instruction in the best possible way, should keep before their minds the fact, that *children delight as much in exercising their minds as their limbs;* provided only that which is presented to them, be suited to their capacity and adapted to their strength. Hence not only should every lesson be so prepared as to be read with facility, but the Teacher should endeavour to make the pupil know the *meaning* of all he reads. Never be satisfied with the knowledge of *words* merely. To ascertain that *ideas* in distinction from mere words, are received by the pupil, the practice of *interrogation* should be habitually resorted to. A Teacher who has not been in the habit of doing this, can form no adequate notion of the amount of ignorance and misapprehension which this *plough-share of the mind* will turn up.* This may be illustrated by a reference to the Derivatives preceding each Section, which should be a subject of daily attention. The Prefixes, Affixes, &c., should be carefully committed to memory, a few at a time, and the pupils should then be required to give additional instances of English Derivatives. They should also be taught to separate the *prefix* and *affix*, &c., by attention to the *Italic* characters in the examples. Suppose the word *inspection* occurs, ask its meaning? How it is derived or compounded, &c.? Require them then to separate it, and they will reply *in* in or upon, *spect*, look, and *tion*, act or action. Then ask for other instances in which the root *specto* occurs. Pro-spect, re-spect, spect-acle, and such like will then be given. This teaches the child to *apply* every word as it is brought before him; it teaches him to compare, to discriminate, to judge; a process by which he is rendered capable of far greater mental exertion.

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* School-Teacher's Manual.

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INTRODUCTION.

The Organs of Speech may be considered as an instrument upon which we play every time we speak or sing. To perform either of these perfectly, it is necessary that we become acquainted with the nature of the construction, the extent and powers of this instrument.

There are two Grand Classes, or Organs of Speech, the Vocal and Enunciative. The Vocal Organs are those parts by which we produce *tunable* sounds,—they are called the Larynx and Epiglottis or Glottis.

The Larynx is the top of the wind pipe, and consists of five cartilages, and forms that knot which may be felt externally in the fore part of the throat. The small opening in the centre of this, through which we breathe, is called the Glottis. By this little opening all the sounds constituting *voice* are produced. This opening we can expand or contract at pleasure, and every change in its dimensions changes the quality of the sound produced. The wider the opening, and the greater the quantity of air forced through it, the greater is the compass of sound produced—and on the other hand, the voice is more or less shrill and feeble, according to the extent to which the opening is contracted. The Glottis is always narrower in women and young persons than in men, and hence men's voices are deeper or greater than those of boys and women.

The *Enunciative organs* are those portions and members of the mouth by which we add to the sound produced by the vocal organs, in other words by which we produce articulate sounds. The principal enunciative organs are the throat, palate, teeth, tongue, lips, and nostrils. All these are necessary to complete articulation. Speech, whether audible or whispered, is *Voice* modified by the enunciative organs. Articulate sounds cannot be produced till these organs assist the Vocal, by forming the sound produced by them, which we call voice, into syllables and words.

Such being the instrument employed in reading or speaking, the following brief directions for the management of the Voice will be found of great importance :—

ARTICULATION.

Articulation is obviously the first point in the management of the voice, and one of indispensable necessity; because any imperfection in this respect, will obscure every other talent in reading or speaking. The following definition of Articulation, given by Mr. Sheridan, in his Lectures on Elocution, may be regarded as correct; " A good articulation consists in giving every letter and syllable its due proportion of sound, according to the most improved custom of pronouncing it—and in making such a distinction between the syllables of which a word is composed, that the ear shall without difficulty acknowledge the numbers, and perceive at once to what syllable each letter belongs. Where these points are not obvious the *articulation* is proportionably defective."

The easiest and most efficient mode of acquiring a correct articulation, is to practice the vowel and consonant sounds individually. As an exercise on each sound, a few unaccented words may be selected in which the sound is strongly marked, and in order to proceed with some degree of accuracy, the pupil should at this stage be made acquainted both with the number of the sounds he has to use, and also with their organic formation.

Articulation also regulates the proportionate force of syllables in a word. The accented syllable of a word is generally given with more precise articulation, and more exactness in regard to the quality of sound, than the unaccented. Hence, too much attention cannot be paid on the part of the teacher, to the producing of the exact sounds by the pupil in the unaccented syllables; for in reading, as in every other acquirement, accuracy and precision is the foundation of all future improvement. When correct articulation is obtained, the next object should be to have a smooth, even, full tone of voice; and if it is not in some cases natural, every encouragement should be held out to persevering practice to obtain it—and such is the force of exercise upon the organs of speech, as well as every other in the human body, that constant practice will strengthen the voice in any key we use it to. That key, therefore, which is the most natural, and which we have occasion most to use, should be the one which should be most diligently improved.

The better to accomplish this grand object and obtain the full management of the voice, it is of great importance to guard against a mistake respecting the various states of the voice and tone of which it is susceptible. Many, even teachers it is to be doubted, do not consider but a *high tone* of voice and a *loud voice* are synonymous; and accordingly, the pupil is often told to *raise* his voice. This mistake is the more dangerous, as the voice naturally slides into a higher tone when we try to speak louder, but not so easily into a lower tone, when we try to speak more softly. And upon this erroneous principle, pupils in our common schools are very often found reading with their voice raised to such an unnatural pitch as to render it utterly impossible to give the various sounds their proper places, and set all attempts to modulate its impressions into melody at defiance. The least reflection, or, at all events a few experiments, may satisfy any one that in proportion to the extent to which the *pitch* of the voice above what is natural, is raised, is its *volume* or capacity for loudness decreased.

PAUSING.

Punctuation is of two kinds, viz., Grammatical and Rhetorical. *Rhetorical* punctuation means all the pauses made in good reading or speaking. *Grammatical* punctuation is a part of style, to the purpose of which it is exclusively applied. The points commonly used in grammatical punctuation are the comma, semicolon; colon: and period. The points improperly called *pauses* or *stops*, are employed in books to make the grammatical structure of a sentence into its clauses, branches, members, and termination. They should never be considered as guides in reading or speaking; although too generally so employed not only in antiquated and incorrect systems of reading, but by many teachers in the present day. Indeed this subject is so little understood, yet of so great importance, that some farther explanation is probably essential to lead to any thing like general correctness. The following, it is hoped, will be satisfactory:—

Grammatical punctuation does not always demand a pause, and besides, the *time* of these points, as commonly stated in many school books, is egregiously incorrect. In most books, for example, the time of pausing at a *period*, is described as being *four times* as long as that at a comma; whereas it is regulated entirely by the nature of the subject, the intimacy or remoteness of the connection between the sentences, and other causes. They are inapplicable as guides for many reasons—they were never *designed* as such, when placed as accurately as possible—for the grammatical structure of the sentence they do not occur at *one half* of the places good reading requires. And on the other hand, they are often necessary in a grammatical sense where *no pause* is admissible in correct reading. To attempt a practical application of them, therefore, in the character of *pauses*, in reading all the varieties of style, whether serious or comic, deliberate or rapid, with or without passion, would be a burlesque upon reading, and set common sense at defiance. Grammatical points should be considered then, what they really are, a branch of style, and taught by the teacher of composition; but the moment we regard them as guides to delivery, we find them deficient at every point. Their use to a good reader is merely to prevent the construction of the sentence from being mistaken.*

Rhetorical punctuation is a part of oratory inseparable from all good reading or speaking. The following general rules for pausing deserve attention:—

1. Pause after the nominative, if it consists of several words; before and after an intermediate clause; before the relative; before and after clauses introduced by prepositions; before conjunctions; and before the infinitive mood, if any words intervene betwixt it and the word which governs it.

Examples.

Truth | is the basis of excellence.

Trials | in this state of being | are the lot of man.

The experience of want | enhances the value of plenty.

We applaud virtue | even in our enemies.

Honour | and shame | from no condition rise.

Death | is the season which brings our affections to the test.

A public speaker | may have a voice that is musical | and of great compass; but it requires much time and labour | to attain its just modulation | and that variety of flexion and tone | which a pathetic discourse requires.—*Remark.* It is not requisite to pause so long after a simple nominative, as when it may be said to consist of many words.

2. When the adjective follows the noun, and is succeeded either by another adjective, or words equivalent to it, which form what may be called a descriptive phrase, it must be separated from the noun by a short pause.

Example.—He was a man | learned and polite.

With regard to the *length* of rhetorical pauses, that should be regulated by the length of the syllable, similar to rests in music, the shortest pauses equal the time of the shortest syllables in the piece, and so on to the longest syllables.

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* Chapman's Rythmical Grammar.

An attention to what is principal, and what is subordinate in the construction of a sentence, is in all cases of the last importance towards a distinctive pronunciation, and furnishes the proper *key* to all *correct pauses.*

ACCENT OR INFLECTION.

The voice in reading or speaking is continually moving by slides or turns, from grave to acute, and from acute to grave. Upon the right management of these slides, not only depends all that variety and harmony which always mark good reading or speaking, but, to a great extent, the meaning and force of what is uttered.

Every syllable we pronounce is inflected in a greater or less degree; and though we often hear of the *monotone* in reading, yet accurate observation tells us that no such thing exists in spoken language.

When a sentence is said to be read in a *monotone,* the meaning must be, that it is monotonous only by comparison, for the real monotone belongs to the music of song, and not to the melody of speech.

These slides are commonly called accents. To prevent mistake or ambiguity on this important subject, let it be observed that the term *accent,* when employed in reference to the slides of the voice in reading or speaking, never means *stress* or *force* of any kind on a syllable or word. To give the rising inflection is not to pronounce the word merely with loudness, or to give the falling inflection is the word to be pronounced more weak or feeble.

The four following may be considered the principal inflections of the voice :—

1. The *rising slide,* or that upward turn of the voice which we generally use in asking a question beginning with a verb, and is marked with an acute accent, thus, (´) as Will you gó ?

2. The *falling slide* which is commonly use at the end of a sentence, and is marked with a grave accent, thus, (`) as, What o'clock is it` ?

All the varieties of accents, however varied in their application, originate from these two simple modifications of the voice. They have been, therefore, justly described as the *axis* on which the force, variety, and harmony of speaking turn; and they cannot be too fully exemplified to the pupil.

3. The *rising circumflex,* which begins with the falling, and

ends with the rising inflection on the same syllable, and is marked thus, (⌣) as, Yŏu, Sir!

4. The *falling circumflex*, which begins with the rising, and ends with the falling slide on the same syllable, marked thus, (⌢) as, It was yôu, Sir!

Examples.—The Rising followed by the Falling.

Does he talk rationally′, or irrationally‵?
Does he pronounce correctly′, or incorrectly‵?
Do they act cautiously′, or incautiously‵?
Should we say altar′, or altar‵?
Should we say eager′, or eager‵?
Should we say ocean′, or ocean‵?
Should we say oozy′, or oozy‵?

The Falling followed by the Rising.

He talks rationally‵, not irrationally′.
He pronounces correctly‵, not incorrectly′.
He means honesty‵, not dishonesty′.
They acted cautiously‵, not incautiously′.
We should say altar‵, not altar′.
We should say eager‵, not eager′.
We should say ocean‵, not ocean′.
We should say oozy‵, not oozy′.

PROMISCUOUS.

Was it Jámes or Wìlliam? It was Jàmes, and not Wílliam.

Shall we have peáce or wàr? Did you pronounce that sentence with the gràve or with the acúte accent? Taste consists in the power of jùdging, not of execúting.

Examples of the Circumflexes.

Did Jâmes say sŏ? O yes‵, Jâmes said it.

Did Wìlliam perform his dúty? Sûrely, hĕ âlways does his dûty. A child might understand it.

Would you betray your kĭng?

Hear him my lord; he's wŏndrous cŏndescênding.

The application of the accents must always vary according to the position of the words, whether in question or answer, in a negative, a conditional, or an affirmative expression. To fix precisely, therefore, their application by general rules as has been often attempted, is in the nature of things impossible. The following rules referring to sentences and parts of sentences, comprise all that are essential and universally practical.

I. AFFIRMATIVE SENTENCES.

1. When the sense is complete, whether it be at the termination of a sentence, or of a clause of a sentence, use the falling inflection.

2. In negative sentences, on the contrary, or negative members of sentences, use the rising inflection.

3. When sentences are divisible into two parts, the commencing part is distinguished by the rising inflection.

Examples.

1. It is to the unaccountable oblivion of our mortality, that the world owes all its fascination`.

Age, in a virtuous person, carries with it authority, which makes it preferable to all the pleasures of youth`.

Every desire, however natural, grows dangerous, as, by long indulgence, it becomes ascendant` in the mind.

You may lay it down as a maxim, confirmed by universal experience, that every man dies as he lives; and it is by the general tenor of the life, not a particular frame of mind at the hour of death, that we are to be judged at the tribùnal of God.

2. The religion of the gospel is not a gloom′y religion.

I cannot, I will not join in congratulation on misfortune and disgracé.

Greatness confers no exemption from the cares and sorróws of humanity.

It is not enough that you continue steadfast and immovablé—you must also abound in the work of the Lord, if you expect your labours to be crowned with success.

3. *If to do were as easy as to know what were good′ to do*—chapels had been churches, and poor mens' cottages princes' palaces.

While dangers are at a distance, and do not immediately′ approach us—let us not conclude that we are secure, unless we use the necessary precautions against them.

As the beauty of the body always accompanies the health' of it—so is decency of behaviour a concomitant to virtue.

No man can rise above the infirmities of naturé, unless assisted by God.

Your enemies may be formidable by their numbers, and by their power', but He who is with you is mightier than they.

Virtue were a kind of misery'—if fame were all the garland that crowned her.

To all the charms of beauty, and the utmost elegance of external form', Mary added those accomplishments which made their impression irresistible.

The only exception to these rules worthy of notice occurs in the case of antithetical sentences. When the commencing member of an antithesis requires the relative emphasis, or is opposed in the concluding member by a negative, the latter has the rising, and the former the falling inflection—as in the following examples:

We have taken up arms to defen`d our country, not to betray it'.

The duty of the soldier is to obey`, and not to direct his general'.

II. INTERROGATIVE SENTENCES.

1. *Questions* asked by pronouns or adverbs generally end with the falling inflection.

2. Questions asked by verbs generally end with the rising inflection.

3. When the question affects two objects, taken disjunctively, the former has the rising, and the latter the falling inflection.

Examples.

1. What evil can come nigh to him for whom Jesus` died?

2. Shall dust and ashes stand in the presence of that uncreated glory, before which principalities and powers bow down, tremble, and adore'? shall guilty and condemned creatures appear in the presence of Him, in whose sight the heavens are not clean, and who chargeth his angels with folly'?

3. Are you toiling for famé, or fortunè?

(1.) Who are the persons who are most apt to fall into peev'ishness and dejection? that are continually complaining of the world, and see nothing but wretchedness around them? (3.) Are they the affluent' or the indigent`? (2.) Are they those whose wants are administered to by a hundred hands besides their own'? who have only to wish and to havé?—Let the minion of fortune answer you. (2.) Are they those whom want compels to toil for their daily meal and nightly pillow′—who have no treasure, but the sweat of their brows′—who rise with the rising sun, to expose themselves to all the rigours of the seasons, unsheltered from the winter's cold, and unshaded from the summer's heat′? No! the labours of such are the very blessings of their condition.

III. PARENTHESIS.

A Parenthesis is a clause inserted in part of a sentence which does not affect the construction.

The matter contained within a parenthesis, brackets, and all loose and intervening clauses, should be read in a lower tone, and somewhat quicker than the rest of the sentence; with a short pause both before and after it—and in general the last word should have the inflection which precedes it, to bring the voice to the same key in which it was before entering upon it.

Examples.

Know ye not brethren′, (for I speak to them that know the law′), how that the law hath dominion over a man as long as he liveth′?

Then went the captain′ with the officers and brought them without viòlence (for they feared the people, lest they should have been ston‵ed); and when they had brought them they set them before the council.

Death′ (says Senecá), falls heavy upon him, who is too much known to others, and too little to himself.

If there's a power above ús, (and that there is, all nature cries aloud through all her works′), he must delight in virtue.

IV. EMPHASIS.

Emphasis, in the most usual sense of the word, is that stress with which certain words are pronounced so as to distinguish them from the rest of the sentence. Mr. Sheridan says, it discharges the same sort of office in a sentence, that accent does in words. No word can be emphatical unless there be antithesis or contradistinction either expressed or understood.

Examples.

Without *hopé* there can be no *caùtion*.

No one loves *him′* that only loves *himsèlf*.

We should *esteem virtue*, though in a *foè*; and *abhor vice*, though in a *friènd*.

Many men mistake the *lóve* for the *prâctice* of virtue.

There are FOUR *distinct degrees of emphasis of* SENSE.

1. *When the antithesis, or opposition, is expressed and not denied.*

There seems to be some minds suited to *great*, and *some* to *little* employments; some *formed* to soar *aloft*, and *others* to *grovel* on the ground, and confine their regard to a narrow sphere. Of these, the *one* is in danger of becoming useless by a *daring negligence*, the *other* by a *scrupulous* solicitude; the *one* collects many ideas, but confused and indistinct; the *other* is buried in minute accuracy, but without compass, and without dignity.

2. *When the antithesis is neither expressed nor denied.*

Examples.

Did not *yóu* say so? It was certainly *Jámes* that told me: I think it was *Jóhn* who came home first. I am not very *súre*, but I think so.

Let it be observed that all such emphasis have the acute accent.

3. *When the antithesis is expressed and denied.*

It was *Jàmes* not *Jóhn*, that told the falsehood.

He was more to be *pìtied* than *despísed*.

A countenance more in *sor`row* than in *an′ger*.

In such emphasis the *affirmative* has the *grave* accent, with a considerable degree of force, and the *negative* has the *acute* accent with less force.

4. *When the antithesis is not expressed, but understood, and is denied in the emphasis.*

This has a stronger degree of force than any other emphasis, and is always accompanied with the *grave* accent, because it is *affirmative*.

I will *nòt* say so. I want *jus`tice*, and I shall *demànd* it.

It is not *yoùr* business. You are a *par`tial* judge.

And Nathan said unto David, *thòu* art the man.

The inflection of emphasis differs from that of merely accented words, as with greater force it is also more circumflex.

Emphasis effects a transportation of accent, when words which have a sameness in part of their formation are opposed to each other in sense; as Lucius Cataline was expert in all the arts of simulation′ and dissimulation`.

Words may be rendered peculiarly emphatic by a long pause before them, and the adoption of a different key on the emphatic word: thus, Why should Rome fall—a *moment*\ ere her time?

OF THE DIFFERENT MANNERS OF READING AND SPEAKING.

In good reading the manner must of course vary in accordance with the various styles and circumstances connected with the subject. There are some styles of speaking less difficult than others, and which therefore ought to be practiced earlier.

I. THE NARRATIVE MANNER.

The first and simplest manner of speaking is that which is used in communicating ordinary information, when the subjects are not of a nature to affect the feelings—a manner which must frequently be proper in all kinds of discourses, whether narrative, descriptive, didactic, or argumentative; but which for distinction's sake may be called the *Narrative* manner.

Examples.

I do not remember to have met with an instance of modesty with which I am so well pleased, as that celebrated one of the young prince, whose father being a tributary king to the Romans, had several complaints laid against him before the Senate, as a tyrant and oppressor of his subjects. The prince went to Rome to defend his father, but coming into the senate, and hearing a multitude of crimes proved upon him, was so oppressed when it came to his turn to speak, that he was unable to utter a word. The story tells us, that the fathers were more moved at this instance of modesty and ingenuousness than they could have been by the most pathetic oration; and, in short, pardoned the guilty father for this early promise of virtue in the son.

Spectator.

II. ARGUMENTATIVE MANNER.

After the narrative manner may be described the *Argumentative*, which is, that we employ when our business is not merely to inform, but to convince.

While we suppose the mind of our hearers to be passive, we have nothing to do but with self-possession to present our subject in its proper shape and colour; but argument implies opinions or contrary feelings to be combated;—the voice becomes louder, and generally higher;—the inflections are heightened; that is, they move within greater intervals, going deeper into the grave, and higher into the acute;—the rate of pronunciation is slow, moderate, and rapid by turns—slow, when a particular point requires steady attention—rapid, when premises carefully collected present a sudden irresistible conclusion.

Example.

Truth and sincerity have all the advantages of appearance, and many more. If the show of any thing be good for any thing, I am sure the reality is better; for why does any man dissemble, or seem to be that which he is not, but because he thinks it good to have the qualities he pretends to. For to counterfeit and dissemble, is to put on the appearance of some real excellency. Now the best way for a man to seem to be anything, is really to be what he would seem to be. Besides, it is often as troublesome to support the pretence of a good quality as to have it; and if a man have it not, it is most likely he will be discovered to want it, and then all his labour to seem to have it, is lost. There is something unnatural in painting, which a skilful eye will easily discover from nature, beauty and complexion. It is hard to personate and act a part long; for when truth is not at the bottom, nature will always be endeavouring to return, and will betray herself at one time or other. Therefore, if any man think it convenient to seem good, let him be so indeed; for then his goodness will appear to every one's satisfaction. Tillotson.

III. MEDITATIVE MANNER.

Next in order to the Narrative and Argumentative, may be described a manner which we may call *Meditative.* It takes place when the speaker seems to follow, not to guide, the train of thought; that is to say, when he does not seek to convey information of which he is previously possessed, or to establish a truth of which he is previously convinced, but reflect for his own information or pleasure, and pursue his reflections aloud. In this mode of speaking, the tone of voice is generally low, the rate of utterance tardy, while the thought is undetermined, but brisk when any point is suddenly solved.

Example.

No, no; this can be no public road, that's certain: I am lost, quite lost indeed. Of what advantage is it now to be a king? Night shows me no respect; I cannot see better than another man; nor walk so well. What is a king? Is he not wiser than another man? Not without his counsellors, I plainly find. Is he not more powerful? I have often been told so indeed; but what now can my power command? Is he not greater and more magnificent? When seated on his throne, and surrounded with nobles and flatterers, perhaps he may think so; but when lost in a wood, alas! what is he but a common man? His wisdom knows not which is north, and which is south; his power, a beggar's dog would bark at; and his greatness, the beggar would not bow to. And yet how oft are we puffed with these false attributes. Well, in losing the monarch, I have found the man. Hark! I hear a gun; some villain sure is near. What were it best to do? Will my majesty protect me? No. Throw majesty aside, then, and let my new-found manhood do it.

The king lost in a wood while hunting; from Dodsley.

All discourse which does not acquire a character of expression from passion or emotion, will fall under one of the three styles above described. But it must not be supposed, that, in the same piece, the style of speaking will continue unchanged throughout. A narrative will frequently demand some of the eagerness of argument; argument is often accompanied by a statement of premises which must be made in the plainest and simplest manner; and meditation, if the trains of thought flow with freedom, will have the ease of narrative; if the points are doubtful, it will be requisite that they should be balanced one against another with the earnestness of disputation.

A modification of manner will also arise from the nature of the composition, and from the character and situation of the speaker. When discourse turns upon strong and immediate interest, and excites any of the active or violent passions, as confidence, determination, courage, fierceness, triumph, pride, indignation, anger, rage, hatred, fear, remorse, despair, envy, malice;——a manner arises which may take the comprehensive name of *Vehement*. Of the three plain styles of speaking already named, the argumentative is that which is chiefly liable to rise into vehemence.—In expressing *confidence, courage, determination, pride*, the voice is strong and loud, but with respect to pitch, is in a firm middle tone. In *remorse, hatred, envy, malice*, it is generally low and harsh.—*Anger, rage*, and *scorn*, have the same harshness, but usually the tone is higher. *Remonstrance* is generally in a low and more gentle tone. In *despair* the voice is frequently loud and shrill. Extraordinary vehemence in any of the passions generally accelerates the rate of utterance; though in hatred and malice it may be retarded, and become slow and drawling. There are also other modifications of manner, such as the Plaintive, Gay, or Lively, and Gloomy or Solemn manner, but which being simple and more obvious from the nature of the subjects, need not be here particularly specified.

In order to compress this volume as much as possible, examples of the above manners will be pointed out in different parts of the subsequent lessons.

DERIVATIVES FROM LATIN AND GREEK ROOTS OCCURRING IN SECTION I.

N. B. The Root is represented in the Derivatives by the *Italic* characters.

Root and Meaning.	Derivatives and Meaning.
Aestimo, I value	*Esteem*, high regard.
Aggelos, (pro angelos) a messenger	*Angel*, a good spirit in a state of glory
Agilis, active, speedy	*Agil*ity, nimbleness and activity
Ago, (Lat.), I do, actus, done	*Ag*itate, to put into motion, trans*act*, to carry on
Ago, (Gr.), I lead, agōgos, a leader	Syn*agog*ue, an assembly of the Jews to worship
Agōn, strife	*Agon*y, extreme pain
Animus, the mind, animu, the soul	*Anim*ate, to make alive
Annus, a year	*Annu*al, happening yearly
Antiquus, ancient	*Antiqu*ity, old times.
Archē, the beginning, government	*Arch*itect, a builder
Ars, artis, art, skill	*Arti*ficial, made by art, not genuine
Barbarus, rude	*Barbar*ity, cruelty
Bellum, war	Re*bell*ion, insurrection
Bene, well	*Bene*ficent, kind
Biblos, a book	*Bibl*e, the sacred volume
Bibo, I drink	Wine*bibb*er, a tippler
Cado, I fall, casus, fallen, (cĭdo, when compounded)	Acc*id*ent, that which happens unforeseen, coin*cid*e, to agree
Capio, I take, captus, taken, (cipio and ceptus in composition)	Anti*cip*ation, foretaste, de*cept*ion, a fraud, oc*cup*ation, employment, oc*cup*y, to possess
Cedo, I yield, I go away, cessus, given up	De*ceas*e, death, pre*ced*e, to go before, pro*ceed*, to go forward, suc*ceed*, to follow after
Cella, a cellar	*Cell*ar, an underground store
Cerno, I discern, I decree, cretus, perceived	Dis*cern*, to see

Root and Meaning.	Derivatives and Meaning.
Clino, I incline, or bend	In*cline*, to lean, in*clin*ation, tendency
Colo, I cultivate, cultus, cultivated	*Culti*vate, to till, to improve,
Credo, I believe, I trust, creditus, trusted	*Credit*, trust, belief
Cubo or Cumbo, I lie down	In*cumb*ent, resting upon, imposed as a duty
Crux, crucis, a cross	*Crucif*y, to put to death by nailing to a cross
Cura, care, business	Ac*cur*ate, exact, se*cure*, safe
Curro, I run, cursus, a running	Oc*cur*, to happen
Curvus, crooked, winding	*Curv*ed, bent
Chronos, time	*Chrono*logy, the science of adjusting time
Cieo, or cio, I excite or call, citus, called	Ex*cite*, to stir up
Clamo, I call out, clamatis, cried out	Pro*claim*, to announce publicly
Clemens, merciful, mild	*Clemenc*y, mercy
Deus, God	*Dei*ty, the nature and essence of God
Dico, I say, dictus, said	Pre*dict*, to foretell, to prophesy
Dies, a day	*Di*al, a plate with the hours of the day marked on it
Dignus, worthy	*Dign*ify, to honour, in*dign*ant, angry and disgusted
Duco, I lead, ductus, led	Con*duc*ive, that which may contribute to an end, in*duc*ement, motive
Emo, I take or buy, emptus, bought	Red*eem*er, one who ransoms, red*empt*ion, release
Ergon, work	En*erg*y, force, efficacy
Facio, I make, factus, made (ficio and fectus when comp.)	*Fact*, a thing done, de*fect*, want, re*fect*ory, eating room
Fanum, a temple	Pro*fane*, irreverent to sacred things
Fendo, I strike, fensus, struck	De*fend*, to protect
Fero, I bear or carry	Dif*fer*, to be unlike, in*fer*, to draw a conclusion, of*fer*, to present, pre*fer*, to like better.
Fido, I trust	*Fid*elity, honesty
Figo, I fix, fixus, fixed	*Fix*, to make fast, af*fix*, to subjoin

ROOT AND MEANING.	DERIVATIVES AND MEANING.
Flecto, I bend, flexus, bent	In*flex*ible, not to be bent, *reflect*, to consider
Fligo, I beat, flictus, beaten or dashed	In*flict*, to impose a punishment
Fluo, I flow, fluxus or fluctus, flowed	In*flu*ence, power of directing
Frango, I break, fractus, broken	*Fract*ure, a breach or breaking
Fraus, fraudis, deceit	De*fraud*, to cheat, to impose upon
Gigno, I beget, genitus, begotten	*Gen*eration, a race or family, pro*geny*, offspring
Globus, a bowl, a ball	*Globe*, a round body, a sphere
Glotta or glossa, the tongue	*Glott*is, the head of the windpipe
Gradior, I step, gressus, stepped	De*grad*ation, disgrace, progress, motion forward
Grapho, I write	*Grave* or en*grave*, to carve or cut pictures, &c., in metal, wood, or stone
Gratus, thankful, acceptable	*Grat*ify, to indulge, to delight
Habeo, I have or hold, habitus, had	In*habi*t, to dwell in
Imago, an image or picture	*Image*, a picture, a representation
Jungo, I join, junctus, joined	Ad*join*ing, to be near to, in*junc*tion, order
Jus, juris, right, judex, a judge	*Jud*gment, decision, pre*jud*ice, prepossession
Latus, carried	Re*late*, to have respect to, to tell
Lego, I gather or choose, I read, lectus, gathered	E*lect*ion, the act of choosing, intel*lig*ent, knowing
Levis, light	Al*lev*iate, to lighten
Lex, legis, a law	*Leg*al, lawful
Liber, free	*Liber*ate, to deliver
Ligo, bind	Ob*lig*e, to compel, to please, ob*lig*ation, favour
Linquo, I leave, relictus, left	*Relic*, the remains of some old thing
Logos, a word or discourse	Cata*logue*, a list of things
Mando, I bid or send away	Com*mand*, to govern, to order
Mechanē, a machine	*Mechan*ic, a workman
Medeor, I cure	*Med*icine, a physical cure
Memini, I remember, memor, mindful	*Memor*andum, a note to help the memory

ROOT AND MEANING.	DERIVATIVES AND MEANING
Merx, mercis, merchandise	*Mer*chant, a trader
Minister, a servant	Ad*minister*, to supply, to perform an office
Mixeo, I mix, mistus or mixtus, mixed	*Mix*, to mingle
Mitto, I send, missus, sent	Sub*mit*, to resign to authority, *mess*age, an errand
Mors, mortis, death	*Mort*ally, to death
Nego, I deny	*Neg*ative, proposition that denies
Numerus, a number	E*numer*ate, to reckon up singly
Nuncio, I announce	An*nounce*, to proclaim
Pareo, I obey, parens, a parent	*Pater*nal, fatherly, *patr*imony, an inheritance
Paro, I make or prepare	Pre*pare*, to make ready, pre*para*tory, introductory
Pater, patris, a father	*Parent*, father or mother
Pathos, passion, feeling	*Path*etic, affecting the passions
Pateo, I open	Ex*pat*iate, to range at large
Patior, I suffer, passus, suffered	Com*passion*, pity
Pello, I drive, pulsus, driven	Com*pel*, to force, ex*puls*ion, a driving out
Pendeo, I hang, pendo, I weigh, pensus, hung	De*pend*, to rely on, dis*pense*, to distribute
Perio, I try, I learn	Ex*peri*ence, practice
Peto, I seek, petitus, sought	*Petit*ion, request
Phemi, I say	Blas*pheme*, to revile God
Philos, a lover	*Philos*ophize, to search into the cause of things
Pleo, I fill, pletus, filled, plenus, full	Com*plete*, full, perfect
Plico, I fold, plicatus, folded	Ap*ply*, to put to
Posio, I put or place, positus, placed	Com*pose*, compound, dis*pose*, to give, to place
Populus, the people, a nation	*Popul*ar, suitable to people in general
Porto, I carry	Re*port*, rumour, sup*port*, to bear up
Prehendo, I take, prehensus, taken	Com*prehend*, to include
Premo, I press, pressus, pressed	Im*press*, to print, ex*press*, declare
Pretium, a price, value	Ap*preci*ate, esteem
Rumpo, break, ruptus, broken	Er*upt*ion, a bursting forth

Root and Meaning.	Derivatives and Meaning.
Puto, I think, putatus, thought	Re*putat*ion, credit, character
Quaero, I seek, quaesītus, sought	Ac*quire*, to get, re*quest*, to solicit
Rapio, I snatch, raptus, seized	*Rapt*ure, transport
Rogo, I ask	Ar*rog*ant, haughty
Severus, severe	*Severe*, sharp
Scando, I mount	As*cend*, to climb up
Scribo, I write, scriptus, written	*Scrip*ture, the Bible
Seco, I cut, sectus, cut	In*sect*, a small animal
Sedeo, I sit, sessus, seated	Sub*side*, to sink
Sequor, I follow, secutus, followed	Con*sequ*ence, that which follows; per*secute*, to pursue with malignity
Servo, I preserve	Pre*serve*, to save
Sisto or sto, I stand, status, stood	*Stat*ure, size, circum*stance*, state; ex*ist*, to be
Solvo, I loose, solutus, loosed	Re*solve*, to determine, dis*solution*; death
Sophĭa, wisdom	Phil*osoph*y, natural science
Specio, I see, spectus, seen	De*spise*, to scorn, ex*pect*, to wait for
Sphaira, a sphere	*Sphere*, a globe, a ball
Spiro, I breathe	A*spire*, to pant after something; ex*pire*, to die
Statuo, I determine, statutus, appointed	Con*stitut*ion, establishment, de*stitute*, forsaken
Stinguo, I put out, stinctus, extinguished	Di*stinguish*, discern, ex*tinguish*, to put out
Struo, I build, structures, built or piled up	*Structure*, edifice, con*struct*, to form
Saudeo, I advise	Per*suade*, to bring over to an opinion
Sumo, I take, sumptus, taken	Con*sume*, to waste, pre*sumptuous*, arrogant
Taphos, a tomb	Epi*taph*, inscription on a tomb
Tego, I cover, tectus, covered	Pro*tect*ion, defence, covering
Tempus, temporis, time	*Tempor*ary, lasting only a time
Tendo, I stretch, tensus, stretched	At*tend*, to regard, to accompany, ex*tent*, the compass of any thing

INSTRUCTIVE READER.

SECTION I.

RELIGIOUS AND MORAL INSTRUCTION FOR YOUTH.

LESSONS TO BE TAUGHT YOUTH.

Prepare thy son with early instruction, and season his mind with the maxims of truth. Watch the bent of his inclinations; set him right in his youth; and let no evil habit gain strength with his years. So shall he rise like a cedar on the mountains, his head shall be seen above the trees of the forest. A wicked son is a reproof to his father; but he that doth right is an honour to his grey hairs. Teach thy son obedience, and he shall bless thee; teach him modesty, and he shall not be ashamed; teach him gratitude, and he shall receive benefits; teach him charity, and he shall gain love; teach him temperance, and he shall have health; teach him prudence, and fortune shall attend him; teach him justice, and he shall be honoured by the world; teach him sincerity, and his own heart shall not reproach him; teach him diligence, and his wealth shall increase; teach him benevolence, and his mind shall be exalted; teach him science, and his life shall be useful; teach him religion, and his death shall be happy

Dodsley.

RELIGION.

Men are industrious, that they may get food, clothes, house-shelter, and other comforts. They eat and drink moderately, if they wish to preserve health and an agreeable state of body. They are courteous, modest, kind, and inoffensive, if they wish to be well thought of by their fellow-creatures. And they are strictly just in their dealings, and in the discharge of their duties, if they wish to think well of themselves, and to avoid the punishment usually inflicted upon wicked persons. All of these qualities are only of use in making us pass happily through life. But man finds that he is connected with something besides what he sees and experiences in this life. He asks how himself and all the world were created? He inquires if the mind is to perish like the frail body? To these inquiries, answers have been given in the BIBLE; where we learn that God, an Almighty Being, created Heaven and Earth, and all that they contain; and that the soul after death, is to survive in another state of being. The human being thus finds himself appear in a new and important light; he is not only a creature seeking for present happiness, but is pressing onwards to a spiritual state of being, in which his happiness or misery will be infinitely greater than at present, and to which there will be no end. We learn in the Bible also, that such is our condition in this world as guilty beings by rebellion against our Maker, that no efforts of our own could have enabled us to attain to happiness in the future state, but that God, in his great kindness towards us, has arranged a plan for our salvation, leaving us free, while in this world, to take advantage of that plan if we will. Those who take advantage of the offers held forth in the Bible, are assured of everlasting happiness in communion with God, while those who fail to do so, are as surely threatened with expulsion from God's presence, and with everlasting punishment.

To read and reflect upon these things—to endeavour by the favour of God to run that course which alone can lead us to eternal happiness—and to seek by all proper means to make others do so likewise—are the highest and most solemn of all duties. Various men have formed different opinions respecting the doctrines contained in the Bible, and respecting the best means of carrying on the worship of God; and such differences are apt to lead them into strife. The Bible itself calls upon us to be upon our guard against such variances, and not to be angry with our fellow-creatures because they do not think precisely as we do.

Besides perusing the Word of God, as written in the Bible, we should, as opportunities offer, study his works in the visible creation around us. We there see, in a most affecting light, the immensity of his power and goodness. What other being could have formed the vast expanse of Heaven, filled as it is with worlds, all probably covered as ours is, with creatures enjoying his bounty? Who but He is able to sustain all these worlds in their proper place? Who but God causes the sun to shine over us, or the food to grow by which we are maintained? Who but He could have so arranged all organised beings, that they can live, move, and enjoy themselves, each in its appointed way? In contemplating these things, we naturally feel disposed to adore so perfect and so beneficent a being, and to yield him that obedience, which, in his word, he has called on us to render to him.

Moral Class Book.

THE MORALS OF THE BIBLE.

[The Bible furnishes us with the most perfect system of moral duty ever promulgated. The earliest delivered moral law is briefly comprehended in the Ten Commandments, which are as follows:—]

1. Thou shalt have no other gods before me.

2. Thou shalt not make unto thee any graven image, or any likeness of any thing that is in heaven above, or that is in the earth beneath, or that is in the water under the earth: Thou shalt not bow down thyself to them, nor serve them; for I the Lord thy God am a jealous God, visiting the iniquities of the fathers upon the children unto the third and fourth generations of them that hate me, and shewing mercy unto thousands of them that love me and keep my commandments.

3. Thou shalt not take the name of the Lord thy God in vain: for the Lord will not hold him guiltless that taketh his name in vain.

4. Remember the Sabbath-day to keep it holy. Six days shalt thou labour and do all thy work: But the seventh day is the

Sabbath of the Lord thy God: In it thou shalt not do any work, thou, nor thy son, nor thy daughter, thy man-servant, nor thy maid-servant, nor thy cattle, nor thy stranger that is within thy gates: For in six days the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh day: wherefore the Lord blessed the Sabbath day, and hallowed it. *All these respect our duty to God.*

[At the commencement of the Christian Dispensation, the Sabbath was transferred to the *first* day of the week, in commemoration of the Saviour's resurrection, and is called in the language of the apostles, the LORD'S DAY.]

The commandments that follow, respect our duty to our fellowmen:—

5. Honour thy father and thy mother, that thy days may be long upon the land which the Lord thy God giveth thee.

6. Thou shalt not kill.

7. Thou shalt not commit adultery.

8. Thou shalt not steal.

9. Thou shalt not bear false witness against thy neighbour.

10. Thou shalt not covet thy neighbour's house, thou shalt not covet thy neighbour's wife, nor his man-servant, nor his maid servant, nor his ox, nor his ass, nor any thing that is thy neighbour's.

OF OUR DUTY TO GOD.

[The passages marked by inverted commas in the following paragraphs are Bible language.]

1. *Of loving Him.*—"Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind: This is the first and great commandment."

The Lord Jesus Christ says in like manner:—"He that loveth father or mother more than me, is not worthy of me; and he that loveth son or daughter more than me, is not worthy of me."

2. *Of fearing God.*—"The fear of the Lord is the beginning of wisdom; a good understanding have all they that do his commandments. Great is the Lord, and greatly to be feared.

Let us have grace whereby we may serve Him acceptably, with reverence and godly fear."

3. *Of glorifying Him.*—"Glorify God in your bodies and spirits which are his. Therefore, whether ye eat or drink, or whatsoever ye do, do all to the glory of God. Them that honour God, he will honour; but they that despise him shall be lightly esteemed."

4. *Of worshipping Him.*—"Thou shalt worship the Lord thy God, and him only shalt thou serve. Serve the Lord with gladness,—worship him in the beauty of holiness. God is a spirit, and they that worship Him must worship Him in spirit and in truth."

[A worship performed with the mouth only, while the heart is not engaged, is what He will despise—all such religion is vain.]

5. *Of trusting in Him.*—"Trust ye in the Lord for ever, for in the Lord Jehovah is everlasting strength. In all thy ways acknowledge Him, and he will direct thy steps. Oh! how great is the goodness which thou hast wrought for them that trust in thee, before the sons of men. It is better to trust in the Lord than to put confidence in princes. Cursed is the man that trusteth in man, and maketh flesh his arm, and whose heart departeth from the Lord."

OUR DUTY TO MEN.

First—Relative Duties.

1. *Of Husbands and Wives.*—"HUSBANDS love your wives, even as Christ also loved the church, and gave himself for it. So ought men to love their wives as their own bodies: he that loveth his wife loveth himself: for no man ever hated his own flesh, but nourisheth and cherisheth it."

"WIVES submit yourselves to your own husbands as unto the Lord: for the husband is the head of the wife. The price of a virtuous woman is far above rubies. The heart of her husband doth safely trust in her: she will do him good, and not evil, all the days of her life. Favour is deceitful, and beauty is vain; but a woman that feareth the Lord, she shall be praised."

2. *Duties of Children.*—"Honour thy father and thy mother. Children obey your parents in all things; for this is well-pleasing unto the Lord. My son, hear the instruction of thy father, and forsake not the law of thy mother—and despise not thy mother when she is old. A wise son maketh a glad father; but a foolish son is the heaviness of his mother. Cursed be he that setteth light by his father or his mother, his lamp shall be put out in obscure darkness."

[Your father and mother fed, clothed, and took care of you when you were young and helpless; and without their kindness you might have died of want. It is therefore proper that you should feel grateful to them, and love them, and be ready to do them all the good in your power. You should, in particular, be glad to obey them in all their reasonable requests and commands.]

ANAPIAS AND ANPHINOMUS.

Many hundred years ago, an unusually violent eruption of Mount Etna took place. Burning melted matter poured down its sides in various directions, destroying whole villages, and the air was thickened with falling cinders and ashes. The inhabitants of the neighbouring country fled for their lives, carrying with them the most valuable of their goods. Amongst these people, so careful of their wealth, were two young men named Anapias and Amphinomus, who bore a very different kind of burden on their backs. They carried only their aged parents, who by no other means could have been preserved.

The conduct of these youths excited great admiration. It chanced that they took a way which the burning matter did not touch, and which remained afterwards verdant, while all around was scorched and barren. The people, who were very ignorant, but possessed of good feelings, believed that this tract had been preserved by a miracle, in consequence of the goodness of the youths, and it was ever after called the "*Field of the Pious.*"

Moral Class Book.

3. *Duties of Brothers and Sisters.*—"Behold how good and how pleasant a thing it is for brothers to dwell together in unity!" Brothers and Sisters being brought up together, eating at the same table, playing at the same sports, and united by the love of one father and one mother, are always expected to love each other. If they do so, they show themselves to have good feelings, and that they are worthy of being loved by others. But if they fall out and quarrel, their conduct will appear so unnatural and wicked, that all other people will detest them. Brothers and Sisters who love each other, may also be of great use in promoting each other's welfare, when they grow up; for this reason they should cultivate each other's affections when children, with all possible care. Let it be your aim, my young friends, to please and to be pleased with each other—to bear with each other's faults and tempers—to feel and alleviate each other's griefs and disappointments—and by continual kind behaviour, no less than by good offices, promote harmony amongst yourselves, gladden the hearts of your common parents, and give delight to all around you.

Compiled.

Whatever brawls disturb the street,
  There should be peace at home;
Where sisters dwell and brothers meet,
  Quarrels should never come.

Birds in their little nests agree;
  And 'tis a shameful sight,
When children of *one family*
  Fall out, and chide, and fight.

Watts.

4. *Duties of Masters and Servants.*—"Masters, give unto your servants that which is just and equal; knowing that ye also have a master in heaven; neither is there respect of persons with him Thou shalt not oppress an hired servant that is poor and needy, whether he be of thy brethren or of strangers that are in thy land At his day thou shalt give him his hire, for he is poor and setteth his heart upon it."

PLANCUS AND HIS SLAVES.

"When Octavius, Lepidus, and Antonius, attained supreme power at Rome, Plancus, who had once been consul, was obliged to fly for his life. His slaves were seized and put to the torture, but refused to discover him. New torture being prepared, Plancus could no longer think of saving himself at the expense of such faithful servants; he came from his hiding place, and offered to submit to the swords of those sent to take his life. An example so noble, of mutual affection between a master and his slaves, procured a pardon for Plancus, and made all the world say, that *Plancus* only was worthy of so good servants, and *they* only were worthy of so good a master."

Moral Class Book.

2. "*Servants*, be obedient to them that are your masters; not with eye service as men pleasers, but as the servants of Christ, doing the will of God from the heart." Endeavour "to please them well in all things, not answering again, not purloining, but showing all good fidelity."

Second—Duties to others in General.—1. Of Doing Good.—"Let us not be weary in well-doing: for in due season we shall reap, if we faint not. As we have therefore opportunity, let us do good unto all men. Whoso hath this world's goods, and seeth his brother have need, and shutteth up his bowels of compassion from him, how dwelleth the love of God in him? He that hath pity upon the poor, lendeth to the Lord; and that which he hath given will he pay him again."

General Kosciusko, the hero of Poland, was a very benevolent man. He once wished to send a valuable present to a clergyman at Solothuon, and not liking to put temptation in the way of a servant, he employed a young man named Zeltner, to carry it, and desired him to take the horse on which he himself usually rode. Zeltner, on his return, said he never would ride that horse again, unless the General would give him his purse at the same time. Kosciusko inquiring what he meant, he said, "As soon as a poor man on the road takes off his hat and asks charity, the horse immediately stands still, and will not stir till something is given to the petitioner; and as I had no money about me, I was obliged to feign giving something, in order to satisfy the horse!"

Chambers' Journal.

Of Forgiving our Enemies.—"Ye have heard that it hath been said, thou shalt love thy neighbour, and hate thine enemy. But I say unto you, Love your enemies, bless them that curse you, do good to them that hate you, and pray for them that despitefully use you and persecute you, that ye may be the children of your Father who is in heaven; for he maketh his sun to rise on the evil and on the good, and sendeth his rain on the just as well as on the unjust; if ye forgive men their trespasses, your heavenly Father will also forgive you; but if ye forgive not men their trespasses, neither will your Father forgive your trespasses. Dearly beloved, avenge not yourselves, but rather give place unto wrath; for it is written, *Vengeance is mine; I will repay it*, saith the Lord. Therefore, if thine enemy hunger, feed him; if he thirsts, give him drink. Overcome evil with good."

STORY OF UBERTO.

Genoa, a city in the Mediterranean, was once remarkable as a place of commerce. It was usually governed by a body of nobles; but on one occasion the nobles lost their power, and the city was managed for some time by a set of men, elected for that purpose by the people. The leading man of the popular government was Uberto, who, originally poor, had risen, by his talents and industry, to be one of the most considerable merchants.

At length, by a violent effort, the nobles put down the popular government. They used their victory with rigour, in order to prevent any attempt being made in future to thrust them out of power. Uberto was seized as a traitor, and the nobles thought they used him very gently, when they only decreed that he should be banished forever from Genoa, and deprived of all his property. To hear this sentence, he was brought before the new chief magistrate, Adorno, a nobleman not void of generous feeling, but rendered proud by his sense of high rank, and fierce in consequence of the late broils. Indignant at Uberto, he passed the sentence in very insolent terms, saying, "You -you—the son of a base mechanic, who have dared to trample on the nobles of Genoa—you, by their clemency, are only doomed to shrink again into the nothing from which you sprang."

Uberto bowed respectfully to the court, but said to Adorno that perhaps he might find cause hereafter to repent the language he had used. He then set sail for Naples, where it chanced that some merchants were in his debt. They readily paid what they owed; and, with this small relic of his fortune, he proceeded to an island in the Archipelago, belonging to the state of Venice. Here his industry and talents for business soon raised him once more to wealth. Among other places which he sometimes visited as a merchant, was the city of Tunis, at that time in friendship with the Venetians, though hostile to most of the other Italian states, and particularly to Genoa. In Tunis, where the people were Mahommedans, it was customary to make slaves of all Christians taken in war. As Uberto was on a visit to one of the first men of that place at his country house, he saw a young Christian slave at work in irons, whose appearance excited his compassion. The youth seemed to feel the labour too severe for his slender frame: he leaned at intervals upon his spade, while a sigh burst from his bosom, and a tear stole down his cheek. Uberto addressed him in Italian, and the young man eagerly caught the sounds of his native tongue. By a few kind words, Uberto soon drew from him that he was the son of Adorno, the chief magistrate of Genoa. The banished merchant started at the intelligence, but checked himself, and hastily walked away.

He immediately sought out the corsair captain who had taken the young Adorno. He asked what ransom was expected for the youth, and learned that, as he was believed to be a person of importance, not less than two thousand crowns would be taken. Uberto instantly paid the money. Taking a servant, with a handsome suit of clothes, he returned to the young man, and told him he was free. With his own hands he helped to take off the youth's fetters and to change his dress. The young Adorno thought it all a dream, and at first could scarcely be persuaded that he was really no longer a slave. But Uberto soon convinced him by taking him to his lodgings, and treating him with all the kindness due to a friend. When a proper opportunity occurred, the generous merchant put young Adorno into a vessel bound for Italy; and having given him a sum of money sufficient to bear his expenses to Genoa, he said, "My dear young friend, I could with much pleasure detain you longer here, if it were not for the thought that you must be anxious to return to your parents. Deign to accept of this provision for your voyage, and deliver this letter to your father. Farewell." The youth poured out his thanks to his benefactor, and they parted with mutual tears and embraces.

Adorno and his wife meanwhile supposed that the ship containing their son had foundered at sea, and they had long given him up as dead. When he appeared before them, their mourning was changed into a transport of joy. They clasped him in their arms, and for some time could not speak. As soon as their agitation had a little subsided, the youth informed them how he had been taken prisoner and made a slave. "And to whom," said Adorno, "am I indebted for the inestimable benefit of your liberation?" "This letter," said the son, "will inform you." He opened it, and read as follows:—

"That son of a vile mechanic, who told you that one day you might repent the scorn with which you treated him, has the satisfaction of seeing his prediction accomplished. For know, proud noble! that the deliverer of your only son from slavery is

"The Banished Uberto."

Adorno dropped the letter, and covered his face with his hands, while his son expatiated on the virtues of Uberto, and the truly paternal kindness he had experienced from him. As the debt could not be cancelled, Adorno resolved, if possible, to repay it. He exerted himself amongst the nobles of Genoa, to induce them to reverse the sentence which had been passed on Uberto. Time having softened their feelings, they granted his request, and he soon had the pleasure of communicating to Uberto the intelligence that he was once more a citizen of Genoa. In the same letter he expressed his gratitude for his son's liberation, acknowledged the nobleness of Uberto's conduct, and requested his friendship. Uberto soon after returned to his native city, where he spent the remainder of his days in the enjoyment of general respect.

Moral Class Book.

8. *Of Justice.*—"Woe unto him that buildeth his house by unrighteousness, and his chambers by wrong; that useth his neighbour's service without wages, and giveth him not for his work. Thou shalt not have in thy house divers measures, a great and a small, but thou shalt have a perfect and just measure; for all that do unrighteously are an abomination to the Lord."

Scarcely ever any one prospers by cheating: if not formally punished by law, he is punished by his neighbours, who fear to deal again with one who has imposed upon them. He is avoided and despised, and finds at last that the *honest course* is the only one which is sure to lead to success.

THE HONEST SHOP BOY.

A Gentleman from the country placed his son with a dry-goods merchant in New-York. For a time all went on well. At length a lady came into the store to purchase a silk dress, and the young man waited upon her. The price demanded was agreed to, and he proceeded to fold the goods. He discovered before he had finished, a flaw in the silk, and, pointing it out to the lady, said, "Madam, I deem it my duty to tell you that there is a fracture in the silk." Of course she did not take it.

The merchant overheard the remark, and immediately wrote to the father of the young man, to come and take him home; "for," said he, "*he will never make a merchant.*"

The father, who had ever reposed confidence in his son, was much grieved, and hastened to the city to be informed of his deficiencies. "Why will he not make a merchant?" asked he. "Because he has not *tact,*" was the answer. "Only a day or two ago, he told a lady *voluntarily,* who was buying silk of him, that the goods were damaged; and I lost the bargain. Purchasers must look out for themselves. If they cannot discern flaws, it would be foolishness in me to tell them of their existence."

"And is that all his fault?" asked the parent. "Yes," answered the merchant, "he is very well in other respects."

"Then I love my son better than ever, and I thank you for telling me of the matter; I should not have him another day in your store for the world."

American Newspaper.

4. *Miscellaneous.*—"All things whatsoever ye would that men should do to you, do ye even so to them; for this is the law and the prophets. Let your light so shine before men that they may see your good works, and glorify your Father which is in Heaven. Thou shalt not curse the deaf, nor put a stumbling block before the blind, but shalt fear thy God. Thou shalt rise up before the hoary head, and honour the face of the old man. Owe no man anything, but to love one another. Finally, whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report, if there be any virtue, or if there be any praise, think on these things."

Dr. Franklin relates the following anecdote of Mr. Denham, an American merchant: "He had formerly been at Bristol; had failed in debt to a number of people; compounded, and went to America. There, by a close application to business as a merchant, he acquired a plentiful fortune in a few years. Returning to England in the ship with me, he invited his old creditors to an entertainment, at which he thanked them for the easy composition they had favoured him with; and when they had expected nothing but the entertainment, every man at the removal of his first plate, found under it an order on a banker for the full amount of the unpaid remainder, with interest."

Franklin.

EVIL HABITS TO BE AVOIDED.

1. *Of Lying.*—"Thou shalt not bear false witness against thy neighbour. Lie not one to another, but speak every man *truth* to his neighbour. Lying lips are an abomination to the Lord; but they that deal truly are his delight. He that walketh uprightly, and speaketh truth in his heart; he that sweareth to his own hurt and changeth not—he that doeth these things shall never be moved. A false witness shall not be unpunished; and

he that speaketh lies shall perish. All liars shall have their portion in the lake that burns with fire and brimstone."

THE LYING SHEPHERD BOY.

A Shepherd Boy, wishing to amuse himself at the expense of his fellow villagers, came one day running along, crying "Wolf, wolf!" as if one of these ravenous animals had attacked his flock. The people, eager to defend the sheep, bestirred themselves; but when they came to the place they found no wolf there. So, after scolding the young shepherd, they returned home. A few days after, a wolf did really fall upon the flock, whereupon he ran away to the village, crying "Wolf, wolf!" with all his might. The people told him they were not to be imposed upon twice, they therefore were resolved to pay no attention to his cries. It was in vain he protested that he was in earnest this time; they would not give ear to a word he said. The consequence was, that the wolf killed several of his sheep, for which his master immediately discharged him. Thus, by telling a single lie, though in jest, this foolish boy lost his place.

Mr. Park, in his travels through Africa, relates that a party of armed Moors having made an attack on the flocks of a village at which he was stopping, a youth of the place was mortally wounded in the affray. The natives placed him on horseback and conducted him home, while the mother preceded the mournful group, proclaiming all the excellent qualities of her boy, and by her clasped hands and streaming eyes, discovered the inward bitterness of her soul. The quality for which she chiefly praised the boy, formed of itself an epitaph so noble, that even civilized life could not aspire higher. "He never," said she, with pathetic energy; "never, never told a lie." Young reader, can your parents or teacher say of you, as the poor African said of her son? Alas! I am afraid too many must answer in the negative.

O, 'tis a lovely thing for youth
  To walk betimes in wisdom's way;
To fear a lie, to speak the truth,
  That we may trust to all they say.

But liars we can never trust,
Though they should speak the thing that's true;
And he that does one fault at first,
And lies, to hide it, makes it two.

Watts.

2. *Of Evil Speaking and Talebearing.*—"Speak not evil one of another. Thou shalt not go up and down as a talebearer among the people. He that covereth a transgression seeketh love; but he that repeateth a matter, separateth very friends. Where no wood is, the fire goeth out; so, where there is no talebearer the strife ceaseth."

Good name in man and woman
Is the immediate jewel of their souls;
Who steals my purse, steals trash; 'twas something, nothing;
'Twas mine, 'tis his, and has been slave to thousands;
But he that filches from me my good name,
Robs *me*, of that which not enriches him,
And makes me poor indeed.

Shakspeare.

3. *Of Dishonesty.*—"Thou shalt not steal. Whoso robbeth his father or his mother, and saith it is no transgression, the same is the companion of the destroyer. Let him that stole, steal no more; but rather let him labour, working with his hands, that he may have to give to him that needeth."

THE ROBBER SPARROW.

A martin had built a nice nest for himself in the upper corner of a window, leaving a little hole to go out and in at. As the martin had taken all the trouble of building the nest, it was rightfully his property; it belonged to no other bird, for no other bird had any of the trouble of building it. A sparrow of thievish disposition, chose to pop into the martin's nest, when the martin was from home; and when he returned, he found his place occupied by the sparrow, who, looking out of the hole, pecked at him fiercely, and would not on any account let him into his own house. The martin, who is a gentle bird, found himself no match for the sparrow; but it is supposed that he went and related his case to a few of his friends, for in a little while, a number of martins were observed to come to the spot, as if to endeavour to persuade the sparrow to retire. The intruder, however, still kept his place, easily defending himself against them all. They then went off again, and returning each with a little mud in his bill, proceeded to build up the entrance to the nest, so that the sparrow soon died for want of food and air, and was thus punished for his roguery and violence.

Evenings at Home.

Why should I deprive my neighbour
  Of his goods against his will?
Hands were made for honest labour,
  Not to plunder or to steal.

'Tis a foolish self-deceiving,
  By such tricks to hope for gain;
All that's ever got by thieving
  Turns to sorrow, shame and pain.

Watts.

4. *Of Intemperance.*—"Be not among winebibbers, among riotous eaters of flesh; for the drunkard and the glutton shall come to poverty. Who hath woes? Who hath sorrow? Who hath contentions? Who hath babbling? Who hath wounds without cause? Who hath redness of eyes? They that tarry long at the wine; they that go to seek mixed wine. Look not thou upon it when it is red, when it giveth its colour in the cup, when it moveth itself aright; for at last it biteth like a serpent and stingeth like an adder. Woe unto them that are mighty to drink wine, and men of strength to mingle strong drink. Woe unto him that giveth his neighbour drink, that puttest thy bottle to him and makest him drunken."

The effects of intemperance are written out in pictures horridly true and vivid in every town and village throughout the country. Broken fortunes, blasted anticipations, ruined health, disgrace, hunger, want and suffering in every shape, are the prolific fruits of this wretched habit.

Have you any desire to be involved in these miserable circumstances? Do you wish for degradation and want? You are ready to start back with terror and cry "No, indeed." And how do you expect to avoid them? Is it by following the same path that involved others in misery? Is it by imitating the sot, who in youth drank whenever occasion offered? Good sense, it is hoped, will shew you the danger of such a course. There is one unfailing rule, and but one, by following which every young person may be certain of avoiding this vice, and all the long catalogue of evils that invariably follow in its train, and that is, *to abstain entirely from all drinks that possess this power to intoxicate,* in all places and under every circumstance. *This is your only safeguard.* Observe this rule faithfully, and you are safe—you are entirely beyond the reach of intemperance and its dreadful consequences. But break over this rule, however slightly, or become what is sometimes termed the temperate drinker, and you are exposed to the most imminent danger, and the chances are greatly against you, that you will ere long be involved in the deepest evils of intemperance. Avoid it at the commencement—adopt it as one of the inflexible principles in your conduct to avoid participating of the intoxicating draught under any circumstances, except where administered really as a medicine in cases of sickness; and the cases are very few in which it is either expedient or safe.

Austin's Voice to Youth.

5. *Of Swearing.*—"Thou shalt not take the name of the Lord thy God in vain. Swear not at all, neither by heaven, for it is God's throne, nor by the earth, for it is his footstool, neither by any other oath; but let your communication be yea, yea, nay, nay: for whatsoever is more than this cometh of evil. Because of swearing the land doth mourn."

Mr. John Howe being at dinner with some persons of fashion, a gentleman expatiated largely in praise of Charles I., and made some disagreeable reflections upon others; Mr. Howe observing that he mixed many horrid oaths with his discourse, took the liberty to say, that, in his humble opinion, he had omitted one great excellence in the character of that Prince; which, when the gentleman had pressed him to mention, and waited with impatience to hear it, he told him it was this: *that he was never heard to swear an oath in common conversation.* The gentleman took the reproof, and promised to break off the practice.

Angels that high in glory dwell,
  Adore thy name, Almighty God!
And devils tremble down in hell,
  Beneath the terrors of thy rod.

And yet how little children dare
  Abuse thy dreadful glorious name;
And when they're angry how they swear,
  And curse their fellows and blaspheme!

How will they stand before thy face,
  Who treated thee with such disdain,
While thou shalt doom them to the place
  Of everlasting fire and pain?

If my companions grow profane,
  I'll leave their friendship when I hear
Young sinners *take thy name in vain,*
  And learn to curse, and learn to swear.

Watts.

IMPORTANCE OF FORMING PROPER HABITS.

It has been justly said "that man is a bundle of habits," and from early infancy to mature manhood he is forming habits, which will more or less influence his character and enjoyments through life. Youth in this respect is a most important period. Then is the time, when the mind is tender and pliable, to form those habits that will tend to future prosperity and happiness. For, let it be remembered, that *youthful habits are the seed of a crop, which must be reaped in after life.* If your seed be of the true kind, if you obtain habits of activity, perseverance and energy, your crop will be abundant and gratifying; but if your habits be the reverse, your harvest will be of a corresponding character.

"Habits," says an excellent writer, "are easily formed,—especially such as are bad; and what to-day seems to be a small affair, will soon become fixed, and hold you with the strength of a cable. This same cable, you must recollect is formed by spinning and twisting one thread at a time; but when completed, the proudest ship turns its head towards it and owns its power. Habits of *some* kind will be formed by every youth—he will have a particular course in which his thoughts and feelings, time and employments will chiefly run." Among the habits necessary to ensure respectability and success, the following are of very high importance:—Industry, Perseverance, and Fidelity.

Industry.—This is one of the most necessary and useful habits. The Apostle Paul says, "We commanded you that if any would not work, neither should he eat." It is the first law of our nature, that every true comfort we enjoy must be purchased by exertion. Of all habits that fetter the human powers, *indolence* is the most unmanly and debasing. Of what value is an indolent man to himself or the world? He is good for nothing, and worse than useless—he is a burden to himself, and a pest to society, and commonly a grief to those connected with him. He can scarcely be said to exist—he but vegetates like the weed in the garden; and as the weed, he is disrespected through life, and at death is forgotten.

"Go to the ant thou sluggard; consider her ways and be wise." That little insect furnishes a useful lesson to every man of indolence. With a prudent foresight she industriously "provideth her meat in the summer, and gathereth her food in the harvest;" and when the snows and frosts of winter arrive, they find her fully provided with comforts to sustain her until the spring. But the indolent man has even less wisdom and foresight than the ant. With him the future is all unprovided for, and in an unsuspected hour, want, as an armed man, seizes him in its bony embrace. As a punishment, God has entailed sickness, imbecility, unhappiness, and premature death on the indolent.

Industry is the most fruitful source of that best of bodily blessings, health. Activity too opens up streams of enjoyment that otherwise would be clogged by indolence and general discontent and pain. Let the truth settle deep into every mind that health cannot be long enjoyed without industry. It is a good proverb, "that we had better *wear* out than *rust* out;" for this *wearing* out as it is termed, is indeed the prolonging of life and health—but *rusting* out is a living death. "Pray, of what death did your brother die?" said the Marquis of Spinola to Sir Horace Vere. "He died, Sir," replied he, "of *having nothing to do!*" "Alas! Sir," said Spinola, "that is enough to kill any General of us all."

The turks have a proverb, that "a busy man is troubled with one devil, but the idle man with a thousand." Industry, then, ranks among the best recommendations a young person can possess. He who has this qualification, cannot want for employment, assistance, or friends. The industrious youth, whose other habits are good, will always be respected and encouraged. But indolence, even though connected with many good habits, inspires disrespect and disgust.

Perseverance.—Perseverance is another habit which young people should earnestly endeavour to acquire. This habit must be long cultivated before it can be fully obtained. But once acquired, a habit of perseverance well adhered to, will accomplish the most surprising results. Through its influence Napoleon was enabled to scale the "cloud-capped Alps,"—Franklin became one of the eminent philosophers of the world. The beautiful islands in the Pacific are but immense coral reefs raised from unknown depths by the perseverance of minute insects, which carry but one grain of sand at a time. It is related of the celebrated conqueror Timour the Tartar, that upon an occasion of adverse fortune, he was compelled to hide himself from his pursuers in a ruined building. While in this condition, and while reflecting upon his ill-fortune, he espied an ant diligently engaged in efforts to carry a kernel of grain larger than itself up a high wall. For a long time its efforts were unavailing. Still at every defeat it would renew its exertions with unabated energy and perseverance. Sixty-nine times did it try to perform this feat, and as often failed. But the seventieth time the industrious insect succeeded in gaining the top of the wall with its prize. "The sight," said the conqueror, "gave me courage at the moment, and I have never forgotten the lesson it conveyed."

The example of the ant is worthy of all imitation. Let your plans be deliberately and maturely formed—see that they are honest and honourable—and then let *Perseverance* be your watch-word, and you will seldom fail of success. "I can't," never accomplished anything; but "I will try," has accomplished wonders in the world. When a proper business is fairly undertaken, or a resolution formed, persevere in its pursuit—bend all the energies of your mind to its service, and let no common inducement turn you into another track. "A young man who had wasted his patrimony by profligacy, while standing one day on the brow of a precipice over which he had determined to throw himself, formed the sudden resolution to regain what he had lost. The purpose thus formed, was kept and persevered in; and though he began by shovelling a load of coal into a cellar, for which he only received a York shilling, yet he proceeded from one step to another, till he more than recovered his lost possessions, and died worth sixty thousand pounds sterling."

Fidelity.—A young person can scarcely possess a more desirable qualification than *faithfulness* to his employers, in the discharge of the business and interest entrusted to his disposal. Once let a young man obtain the name of being faithful in all the duties and obligations resting upon him, and he secures the confidence of the whole community. But once let it be known that he is *faithless*, and all trust in him is destroyed, and his character receives a fatal blow.

Have you business to transact? Do it faithfully if your own, and especially so, if it is confided to you by others. Have you work to perform? Let it be done *faithfully*, as near what you engaged to do, and as near what *it appears* to be, as possible. Avoid all deception in regard to these things. A tradesman or merchant very much mistakes his interest who slights his work, or palms off his goods for what they really are not. Such men may gain a few dollars in the outset, by pursuing this deceitful course, but a just and speedy retribution awaits them. Their deceptions are discovered—their dishonesty is laid bare—and an indignant community will withhold further support and encouragement.

A Mahratta Prince, in passing through a certain apartment one day discovered one of his servants asleep with his master's slippers clasped so tightly across his breast that he was unable to disengage them. Struck with the fact, and concluding at once that a person who was so jealously careful of a trifle could not fail to be faithful when entrusted with a thing of importance, he appointed him a member of his body guard. The result proved that the prince was not mistaken. Rising in office step by step, the young man soon became the most distinguished military commander in Mahratta; and his fame ultimately spread throughout India. Thus faithfulness will ever gain confidence, and is one of the most essential ingredients in securing respect and prosperity. Be faithful then—faithful in all you do, even in the most trivial thing and a certain reward awaits you.

Austin's Voice to Youth.

Look out of your door—take notice of that man; see what disquieting, intriguing, and shifting he is content to go through, merely *to be thought* a man of plain-dealing; three grains of *honesty* would save him all his trouble.

Sterne.

ON THE BIBLE.

The Bible tells us us all we know of God—all we know of Heaven as a place of joy, and of Hell as a place of torment. Such is the *information* of the Bible.

The Bible is the only book which tells of the beginning and the end. It is the only book that makes known to us our creation and redemption. No other book is the Word of God. Such is the *authority* of the Bible.

The Bible excites us to kindness, zeal, holiness, and happiness; it upholds all that is virtuous and good, and condemns every thing that is sinful in thought, word, and deed. Such is the *spirit* of the Bible.

The Bible tells us that all men have sinned and come short of the glory of God, and that the wicked shall be cast into Hell, and all the nations that forget God. Such are the *terrors* of the Bible.

The Bible tells us that God has found a ransom; that Jesus Christ, his Son, died upon the cross for sinners; and that all that believe in him shall not perish, but have everlasting life. Such is the *hope* of the Bible.

All who believe the Bible, and live a life of faith in the Son of God, have the promise not only of this life, but of that which is to come; and those who disbelieve the Bible, despise the hope of salvation in a crucified Redeemer, and lead a life of wickedness, have in this world a life without peace, and a fearful looking for of eternal judgment in the next. Such is the *view held forth* by the Bible.

Dost thou reverence, love, and practice the precepts of the Bible? the book is a blessing to thy soul. Dost thou deride, hate, and disobey the precepts of the Bible? the book will prove thy heaviest condemnation.

Old Humphrey's Observations.

ON THE CREATION OF THE WORLD.

Before the sun and the moon had begun their courses; before the sound of the human voice was heard, or the name of man was known; *in the beginning God created the heaven and the earth.* To a beginning of the world we are led back by every thing that now exists; by all history, all records, all monuments of antiquity. In tracing the transactions of past ages, we arrive at a period which clearly indicates the infancy of the human race. We behold the world peopled by degrees. We ascend to the origin of all these useful and necessary arts, without the knowledge of which mankind could hardly subsist. We discern society and civilization arising from small beginnings in every corner of the earth, and gradually advancing to the state in which we now find them: all which afford plain evidence that there was a period when mankind began to inhabit and cultivate the earth. What is very remarkable, the most authentic history and chronology of most nations coincides with the account of the Scriptures, and makes the period during which the world has been inhabited by the race of men, not to extend beyond six thousand years. But, though there was a period when this globe, with all we see upon it, did not exist, we have no reason to think that the wisdom and power of the Almighty were then without exercise or employment. Boundless is the extent of his dominions. Other globes and worlds, enlightened by other suns, may then have occupied—they still appear to occupy—the immense regions of space. Numberless orders of beings, to us unknown, people the wide extent of the universe, and afford an endless variety of objects to the ruling care of the great Father of all. At length, in the course and progress of his government, there arrived a period, when this earth was to be called into existence. When the signal moment, determined from all eternity, was come, the Deity arose in his might, and with a word created the world. What an illustrious moment was that, when from non-existence there sprung at once into being this vast globe, on which so many millions of creatures now dwell! No preparatory measures were required. No long circuit of means was employed. *He spake, and it was done; he commanded, and it stood fast. The earth was at first without form and void; and darkness was upon the face of the deep.* The Almighty surveyed the dark abyss; and fixed bounds to the several divisions of nature. He said, *Let there be light, and there was light.* Then appeared the sea and the dry land. The mountains rose; and the rivers flowed. The sun and moon began their course in the skies. Herbs and plants clothed the ground. The air, the earth, and the water, were stored with their respective inhabitants. At last man was made after the image of God. He appeared walking with countenance erect, and received his Creator's benediction as lord of the new world. The Almighty beheld his work when it was finished, and pronounced it good. Superior beings saw with wonder this new accession to existence. *The morning stars sang together; and all the sons of God shouted for joy.*

Blair.

ON THE PRICE OF THINGS.

Whenever I want any thing, I always ask the price of it, whether it be a new coat, or a shoulder of mutton; a pound of tea, or a ball of pack-thread. If it appears to be worth the money, I buy it, that is, if I can afford it; but if not, I let it alone, for he is no wise man who pays for a thing more than it is worth.

But not only in the comforts of food and clothing, but in all other things I ask the same question; for there is a price fixed to a day's enjoyment, as well as to an article of dress; to the pleasures of life, as well as to a joint of butcher's meat. Old Humphrey has now lived some summers and winters in the world, and it would be odd indeed if he had passed through them all, without picking up a little wisdom from his experience. Now, if you will adopt my plan, you will reap much advantage; but if you will not, you will pay too dearly for the thing you obtain.

The spendthrift sets his heart on expensive baubles, but he does not ask their price; he is, therefore, obliged to give for them his houses, his lands, his friends and his comforts; and these are fifty times more than they are worth. The drunkard is determined to have his brandy, his gin, and his beer, and as he never makes the price an object, so he pays for them with his wealth, his health, his character, and his peace—and a sad bargain he makes of it! It is the same with others. The gamester will be rich at once, but riches will be bought too dear; for he who in getting money, gets also the habit of risking it on the turn of a card, or the throw of the dice, will soon bring his noble to nine-pence. The gamester pays for his riches with his rest, his reputation, and his happiness.

Do you think if the highwayman asked the price of ungodly gain, that he would every commit robbery? No, never! But he does not ask the price, and foolishly gives for it his liberty and his life.

Old Humphrey has little more to say; for if a few words will not make you wise, many will not do so. Ask the price of what you would possess, and make a good bargain. A little prudence will secure you a great deal of peace. But if, after all, you will have the pleasures of sin, I pray you, consider the price you must pay for them.

Yes, thine may be the joys of vice,
And thine without control;
But, ah! at what a fearful price—
The price may be thy soul!

"What is a man profited if he gain the whole world, and lose his own soul?"

Old Humphrey's Observations.

THE SLOTH AND THE BEAVER CONTRASTED.

The Sloth is an animal of South America; and is so ill formed for motion, that a few paces are often the journey of a week; and so indisposed to move, that he never changes his place, but when impelled by the severest stings of hunger. He lives upon the leaves, fruit, and flowers of trees, and often on the bark itself, when nothing besides is left for his subsistence. As a large quantity of food is necessary for his support, he generally strips a tree of all its verdure in less than a fortnight, and, being then destitute of food he drops down, like a lifeless mass, from the branches to the ground. After remaining torpid for some time, from the shock received by the fall, he prepares for a journey to some neighbouring tree, to which he crawls with a motion almost imperceptible. At length arrived, he ascends the trunk, and devours with famished appetite whatever the branches afford. By consuming the bark he soon destroys the life of the tree; and thus the source is lost, from which his sustenance is derived. Such is the miserable state of this slothful animal. How different are the comforts and enjoyments of the industrious Beaver! This creature is found in the northern parts of the United States and in Canada, and is about two feet long and one foot high. The figure of it somewhat resembles that of a rat. In the months of June and July, the Beavers assemble and form a society. They always fix their abode by the side of a lake or river; *and you will find a description of their houses and dams in a subsequent part of this book.* In constructing their buildings their teeth serve them for saws, and by the help of their tails, which are broad and flat, they plaster all their works with a kind of mortar, which they prepare of dry grass and clay mixed together. In August or September they begin to lay up their stores of food, which consist of the wood of the birch, the plane, and some other trees. Thus they pass the gloomy winter in ease and plenty. These two American animals, contrasted with each other, afford a most striking picture of the blessings of industry, and the penury and wretchedness of sloth.

Perceval.

THE SLUGGARD.

'Tis the voice of the sluggard—I heard him complain,
"You have waked me too soon, I must slumber again."
As the door on its hinges, so he, on his bed,
Turns his sides, and his shoulders, and his heavy head:
"A little more sleep, and a little more slumber,"—
Thus he wastes half his days, and his *hours* without number;
And, when he gets up, he sits folding his hands;
Or, walks about sauntering, or trifling he stands.
I passed by his garden, and saw the wild brier,
The thorn and the thistle grow broader and higher;
The clothes that hang on him are turning to rags,
And his money still wastes, till he starves or he begs.
I made him a visit, still hoping to find
That he took better care for improving his mind:
He told me his dreams, talked of eating and drinking,
But he scarce reads his Bible, and never loves thinking.
Said I then to my heart, "Here's a lesson for me,
That man's but a picture of what *I* might be:
But thanks to my friends for their care in my breeding,
Who taught me betimes to love working and reading."

Watts.

THE BIRTH OF THE SAVIOUR ANNOUNCED.

When the Saviour of mankind was born in Judea, his birth was attended with no external splendour which could mark him out as the promised Messiah. The business of life was proceeding in its usual train. The princes of the world were pursuing their plans of ambition and vanity. The chief priests and the scribes, the interpreters of revelation, were amusing the multitude with idle traditions. Jesus lay neglected in the stable of Bethlehem; and the first rays of the Sun of Righteousness beamed unnoticed on the earth. But the host of Heaven were deeply interested in the great event. They contemplated, with pleasure, the blessings which were about to be dispensed to men; and from their high abode a messenger descended to announce the dawn of that glorious day, which the prophets had seen from afar, and were glad. The persons to whom these tidings of joy were first proclaimed, were not such, indeed, as the world would have reckoned worthy of so high a pre-eminence. They were not the wise, or the rich, or the powerful of the earth. That which is highly esteemed among men is often of little value in the sight of God. The rich and the poor are alike to him. He prefers the simplicity of a candid mind to all those artificial accomplishments which attract the admiration of the giddy multitude. It was to the shepherds of Bethlehem that the angel appeared;—to men obscure and undistinguished among their brethren, who, in the silence of night, were following their peaceful occupation, far from the vices of courts, and the prejudices of the synagogue. But the manner in which the birth of the Messiah was announced, was suited to the dignity of so great an occasion. At midnight, these shepherds were tending their flocks, and all was dark and still in the fields of Bethlehem; when, on a sudden, a light from heaven filled the plain, and the angel of the Lord stood revealed before them. So unusual an appearance struck them with awe, they knew not with what tidings this messenger might be charged. But the voice of the angel soon quieted their fears; it was a message of mercy with which he was intrusted. "Behold, I bring unto you good tidings of great joy, which shall be to all people. For unto you is born this day, in the city of David, a Saviour, who is Christ the Lord."

Moodie

When Jordan hushed his waters still,
And silence slept on Zion's hill;
When Bethel's shepherds through the night,
Watched o'er their flocks by starry light.

Hark! from the midnight hills around,
A voice of more than mortal sound
In distant hallelujah's stole,
Wild murmuring o'er the raptured soul.

Then swift to every startled eye,
New streams of glory light the sky,
Heaven bursts her azure bars to pour
Her spirits to the midnight hour.

On wheels of light, on wings of flame,
The glorious hosts of Zion came;
High heaven with songs of triumph rung,
While thus they struck their harps and sung—

"O Zion! lift thy raptured eye,
The long-expected hour is nigh;
The joys of nature rise again,
The Prince of Salem comes to reign.

See, mercy from her golden urn,
Pours a rich stream to them that mourn;
Behold she binds with tender care
The bleeding bosom of despair.

He comes! to cheer the trembling heart,
Bid Satan and his hosts depart;
Again the day-star gilds the gloom,
Again the bowers of Eden bloom!

O Zion! lift thy raptured eye,
The long-expected hour is nigh;
The joys of nature rise again,
The Prince of Salem comes to reign."

Campbell.

ON PRINCIPLE AND PRACTICE.

It is of no use talking, for if a man have not correct *principle*, and if his *practice* be not in agreement with it, all the advantages in the world will never make him what he should be.

A poor man came to me to ask my advice about companions. "Why," said I, "companions may be found as plentiful as thorns upon a goose-berry bush, and the one will prove as sharp to your bosom as the other will be to your fingers, if you are not careful: but let Principle and Practice be your companions; the former will direct you, in all cases, what is best to be done, and the latter will enable you to do it in the best manner. So long as you and Principle and Practice agree, so long will you prosper; but the moment you begin to differ, your prosperity and your peace will melt away like a snow-ball in a kettle of boiling water.

A rich man stopped to talk to me about a new carriage, "Never mind your carriage," said I, "but take special care of your horses. Principle and Practice are a pair of the best coach-horses in the world; while they run neck and neck together, you and your carriage will bowl along safely, but hold them up tightly, for if one trips, it will go hard with the other, and you may find yourself in the mire a day sooner than you expect."

Said a merchant to me, "I am about to send off a rich cargo, and must have a captain and a mate who are experienced pilots on board, but it is hardly in your way to assist me in this matter."

"Yes, yes, it is," replied I, "and I shall recommend Principle and Practice to you, the best commanders you can have, and the safest pilots you can employ. The one possesses the best compass in the world, and the other is unrivalled at the helm. You may securely trust your ship to their course, even though she be laden with gold. Draw your night-cap over your ears, and sleep in peace, for Principle and Practice will serve you well, and if they cannot ensure you prosperity, your hope is but a leaky vessel, and not sea-worthy."

"I wish, Mr. Humphrey," said a neighbour of mine, "that you would recommend my son to some respectable house, for I want sadly to put him apprentice."

"That I will," said I, "and directly too; my best shall be done to get him a situation under the firm of Principle and Practice, and a more respectable establishment is not to be found, so long as the parties in that firm hold together, they will be as secure and prosperous as the Bank of England; but if a dissolution of partnership should ever take place, in a little time neither the one nor the other would be worth a single penny."

"I want a motto," simpered a vain young fellow, who was about to have a ring engraved for his finger.

"And I will give you one," was my reply, "Principle and Practice,—you may wear that motto on your finger, and in your heart too, perhaps with advantage, but if you neglect it, though you wear rings on all the fingers you have, and bells on all your toes too, it is ten to one if you will meet with a better. He who adopts this motto may boldly appear without ornaments in the presence of a King; while he who despises it, though adorned with all the trinkets in a jeweller's shop, is not fit to associate with an honest cobbler."

"I wish to take in half-a-dozen boarders," said a sharp, shrewd, over-reaching widow lady, "if I could meet with any that would be agreeable, and not give too much trouble, and pay regularly but I am sadly afraid that it will be long enough before I shall be able to suit myself."

"Take my advice," said I, "be content with *two* boarders to begin with, Principle and Practice. You cannot do a better thing than to get them into your house, and to keep them there as long as you can; for they will pay you better, behave more peaceably, and do you more credit, than *twenty* boarders of a different character."

"If I had a proper plan," said a gentleman to his friend, "I should be half inclined to build me a house, and to lay out a garden on the ground which I have bought on the hill yonder." Happening to pass at the time, I laid hold of him by the button, and advised him in all his plans and projects to consult Principle and Practice, as they were by far the most able architects, whether a man wanted to build a house for this world or the next.

The poor man and the rich man, the merchant and the father, the beau, the widow and the gentleman, may or may not, follow my advice; but if in adopting any other plans, they disregard *correct principle* and *upright practice*, they will prepare for themselves a meal of wormwood and a bitter draught, a night-cap of thorns, and a bed of briers; a life of vexation, and a death of sorrow.

Old Humphrey.

"The wicked is driven away in his wickedness, but the righteous hath hope in his death—Mark the perfect man, and behold the upright, for the end of that man is peace."

Solomon.

ON AN EARLY REMEMBRANCE OF OUR DEPENDENCE UPON HEAVEN.

Amid all your endeavours after improvement, you must preserve a constant sense of your dependance upon the blessing of heaven. It is too common with the young, even when they resolve to tread the path of honour, to set out with presumptuous confidence in themselves. Trusting to their own abilities for carrying them successfully through life, they are careless of applying to God, or of deriving any assistance from what they are apt to reckon the gloomy discipline of religion. Alas! how little do they know the dangers which await them! Neither human wisdom nor human virtue, unsupported by religion, are equal for the trying situations which often oocur in life. By the shock of temptation, how frequently have the most virtuous intentions been overthrown; under the pressure of disaster, how often has the greatest constancy sunk!

Destitute of the favour of God, you are in no better situation, with all your boasted abilities, than orphans left to wander in a trackless desert, without any guide to conduct them, or any shelter to cover them from the gathering storm. Correct, then, this ill-founded arrogance. Expect not that your happiness can be independent of Him who made you. By faith and repentance apply to the Redeemer of the world. By piety and prayer, seek the protection of the God of Heaven.

THE BOMB-SHELL.

Charles the Twelfth, King of Sweden, while besieged in Stralsund, was, one day, directing a letter to his secretary, when a bomb-shell, from the enemy's works, fell upon the house in which he was, broke through the roof, and burst close to the apartment. The adjoining floor was shivered to pieces; but his own room was uninjured. The report of the shell, however, which seemed to crush the whole house to pieces, alarmed the Secretary, and his pen fell from his hand. "What's the matter?" said the King to him, with a composed countenance; "Why do you not continue writing?" "Most gracious sire," replied the latter, "the bomb-shell!" "Well," said the King, "what has the bomb-shell to do with the letter? go on with the writing."

Self-possession is a great attainment; and, even in things of this life, is often of unspeakable value. But how much more noble is it when dictated and produced by religious principle! The Apostle Paul, when contemplating the dangers and sufferings through which he had passed, and the still greater ones that awaited him, could say, with a holy dignity and sublime composure, "None of these things move me;" such a state of mind is highly desirable. It was inculcated, to a certain extent, by heathen moralists, as conducive to peace and enjoyment; how much more is it incumbent on those in a land of Bible-light to cultivate and display it?

Weekly Visitor.

ON HUMANITY TO EVERY LIVING CREATURE.

ARGUMENTATIVE.

Superiority of rank and station may give ability to communicate happiness (and seems so intended), but it can give no right to inflict unnecessary pain. A wise man would be unworthy the blessing of a good understanding, if he were thence to infer, that he had a right to despise a fool, or put him to any degree of pain. The folly of the fool ought rather to excite his compassion, and demands, in reason and justice, the wise man's care and attention to one that cannot take care of himself. It has pleased the Creator of the Universe, to cover some men with white skins, and others with black skins; but, as there is neither merit nor demerit in complexion, the white man (notwithstanding the barbarity of custom and prejudice) can have no right on account of his colour, to enslave and tyrannize over a black man, any more than a tall man, on account of his size, has any legal right to trample a dwarf under his feet. Now, if among men, the difference of their powers of mind, of their complexion, stature, and the accidents of fortune, do not give to any man a right to abuse or insult another man, on account of these differences,—for the same reason, a man can have no just or natural right to abuse and torment a beast, merely because it has not the mental power of a man. For, such as man is, he is but as God made him, and the very same is true of the beast. Neither can they lay claim to any intrinsic merit for being such as they are; for, before they were in existence, it was impossible that either could deserve distinction; and, at the moment of their creation, their bodily shapes, perfections, and defects, were invariably fixed, and their limits appointed, beyond which they cannot pass. And being such, neither more nor less than they were created, there is no more demerit in animals being animals, than in man being man.

Primat.

Children we are all
Of one great Father, in whatever clime
His Providence hath cast the seed of life,
All tongues, all colours; neither after death
Shall we be sorted into languages
And tints,—white, black and tawny, Greek and Goth,
Nobleman and offspring of hot Africa.
The all-teeming Father, in whom we live and move,—
He the indifferent judge of all,—regards

Nations, and hues, and dialects alike.
According to their works shall they be judged,
When even-handed justice, in the scale,
Their good and evil weighs.

Southey.

I would not enter on my list of friends,
Though graced with polished manner and fine sense,
Yet wanting sensibility, the man
Who, needlessly, sets foot upon a worm.
An inadvertent step may crush the snail
That crawls at evening in the public path;
But he that has humanity, forewarned,
Will tread aside, and let the reptile live.
The creeping vermin, loathsome to the sight,
And charged, perhaps, with venom, that intrudes
A visitor unwelcome, into scenes
Sacred to neatness and repose—the alcove,
The chamber, or refectory—may die;
A *necessary* act incurs no blame.
Ye, however, who love mercy, teach your sons
To love it too. The spring time of our years
Is soon dishonoured and defiled in most,
By budding ills, that ask a prudent hand
To check them. But, alas! none sooner shoot,
If unrestrained, into luxuriant growth,
Than cruelty, most devilish of them all.
Mercy to *him* that *shews* it, is the rule
And righteous limitation of the act,
By which Heaven moves in pardoning guilty man;
And he that *shews none*, being ripe in years,
And conscious of the outrage he commits,
Shall seek it, and not find it in his turn.

Cowper.

THE IMPROVIDENT TRAVELLER.

A certain traveller who had a distance to go—one part of his road leading through green fields, and the other through a tangled road of brambles and thorns, made great preparations for the first part of his journey.

He dressed himself in light and gay clothing, and put a cake in his pocket; he stuck a nosegay in his bosom, and, taking a slender cane in his hand, nimbly proceeded on his way along the beaten path across the green meadows. The sun shone in the skies, and on went the traveller comfortably, pleasantly, and delightfully.

After a while the road became rugged, and by the time night came on, the traveller was in a pitiable plight. His provisions were exhausted; his clothes wet through, and partly torn from his back by the briers; his flowers were faded; and, weary as he was, his slender cane would not bear his weight; a stream of water was before him, and darkness around him.

"Alas!" said he, smiting his breast, "I am hungry, and have no food; wet to the skin, and have no dry clothes; weary, and no staff to rest on; I have a stream to cross, and here is no boat; I am bewildered, and have no guide; it is dark, and I have no lantern. Fool that I am! why did I not provide for the end of my journey as well as for the beginning?

My young friends, time is hastening away; you are travellers! Life is the beginning, death the end of your journey. If you are making preparations, for both, you shall be happy; but if otherwise, you will resemble the foolish traveller.

Old Humphrey.

THOUGHTS ON SLEEPING.

It is astonishing with how little reflection we resign ourselves to sleep! We speak of death with a feeling of dread, and yet to its twin-brother, sleep, we yield ourselves up with the most thoughtless indifference!

Whether we reflect upon its *value*, or upon the *oblivion* into which it casts us, sleep should be considered with the utmost attention and seriousness.

As to its *value*, a single night of the restlessness of sickness, or the watchful agony of sorrow, is amply sufficient to give us a lively idea of that. When unbroken health, and undisturbed serenity of mind render sleep the regular and unmoved attendant upon our nights, its value can only be appreciated with due reflection. And to make that reflection, is a most solemn and indispensable duty. We should endeavour to imagine—and it is but faintly that we can succeed in doing so—how miserable in body and disturbed in mind we should be, were we deprived of the power of sleep. The reflection will teach us to feel that value for sleep, and that gratitude for our enjoyment of it, which the thoughtless of our race can only be made to feel, by the troublesome contrast of being deprived of it.

When we consider the deep and death-like *oblivion* into which we are cast by sleeping, we cannot fail to see that the act of resigning ourselves to sleep is one which demands our most serious reflection, and most anxious preparation. When we are about to lie down to sleep, we ought to consider that it may be that we shall rise up no more in mortal consciousness. The temporary oblivion of sleep may be the passage to the silence and corruption of the grave. For a change so possible—nay, so probable—and a change so awfully important, we ought to prepare ourselves every night ere we lie down to rest. We *may* wake again, indeed, but we may not. The event is not under our own control, or within our own powers of calculation. We ought, therefore, to be prepared for the worst. We ought to lie down in such a frame of mind, as though we were certain that in resigning ourselves to the soothing and stealthy embraces of sleep, we were forever giving up our mortal existence.

It is not, surely, too much for us to feel grateful for one of the greatest blessings we enjoy, and to feel anxious about one of the most important actions we perform. This gratitude, and this anxiety, are all that we have endeavoured to impress upon the minds of our young readers.

Guide to Knowledge.

COMPLAINT OF THE DYING YEAR.

"I am," said he, "the son of old father *Time*, and the last of a numerous progeny; for he has had no less than several thousands of us; but it has ever been his fate to see one child expire before another was born. It is the opinion of some, that his own constitution is beginning to break up, and that when he has given birth to a hundred or two more of us, his family will be complete, and then he himself will be no more."

Here the Old Year called for his account book, and turned over the pages with a sorrowful eye.

He has kept, it appears, an accurate account of the moments, minutes, hours, and months, which he has issued, and subjoined in some places memorandums of the uses to which they have been applied, and of the losses he has sustained. These particulars it would be tedious to detail; but we must notice one circumstance: Upon turning to one page of his accounts the old man was much affected, and the tears streamed down his furrowed cheeks as he examined it. This was the register of the fifty-two Sundays which he had issued; and which, of all the wealth he had to dispose of, has been, it appears, the most scandalously wasted. "These," said he, "were my most precious gifts. Alas! how lightly they have been esteemed!

"I feel, however," said he, "more pity than indignation toward these offenders, since they were far greater enemies to themselves than to me. But there are a few outrageous ones, by whom I have been defrauded of so much of my substance, that it is difficult to think of them with patience, particularly that notorious thief *Procrastination*, of whom everybody has heard, and who is well known to have wronged my venerable father of much of his property.—There are, also, three noted ruffians, *Sleep*, *Sloth*, and *Pleasure*, from whom I have suffered much; besides a certain busy-body called *Dress*, who, under the pretence of making the most of me, and taking great care of me, steals away more of my gifts than any two of them.

"As for me, all must acknowledge that I have performed my part toward my friends and foes. I have fulfilled my utmost promise, and been more bountiful than many of my predecessors. My twelve fair children have, each in their turn, aided my exertions; and their various tastes and dispositions have all conduced to the general good. Mild *February,*[*] who sprinkled the naked boughs with delicate buds, and brought her wonted offering of delicate flowers, was not of more essential service than that rude blustering boy, *March,* who, though violent in his temper, was well-intentioned and useful. *April,* a gentle, tender-hearted girl, wept for his loss, yet cheered me with many a smile. *June* came, crowned with roses, and sparkling in sunbeams, and laid up a store of costly ornaments for her luxuriant successors.—But I cannot stop to enumerate the good qualities and graces of all my children. You, my poor *December,* dark in your complexion, and cold in your temper, greatly resemble my first born, *January,* with this difference, that he was most prone to anticipation, and you to reflection.

"It is very likely that, at least after my decease, many may reflect upon themselves for their misconduct toward me. To such I would leave it as my dying injunction, not to waste time in unavailing regret,—all their wishes and repentance will not recall me to life. I would rather earnestly recommend to their regard my youthful successor, whose appearance is shortly expected. I cannot hope to survive long enough to introduce him; but I would fain hope that he will meet with a favourable reception; and that, in addition to the flattering honours which greeted *my* birth, and the fair promises which deceived my hopes, more diligent exertion, and more persevering efforts may be expected. Let it be remembered, that one honest endeavour is worth ten fair promises.

Jane Taylor.

WHAT IS TIME?

I asked *an aged man,* a man of cares,
Wrinkled and curved, and white with hoary hairs;
"Time is the warp of life," he said; "Oh, tell
The young, the fair, the gay, to weave it well!"
I asked *the ancient, venerable dead,*
Sages who wrote, and warriors who bled;
From the cold grave a hollow murmur flowed—
"Time sowed the seed we reap in this abode!"

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[*] The months are described here as they appear in warmer climates.

I asked *a dying sinner*, ere the tide
Of life had left his veins.—" Time !" he replied,
" I've lost it ! Ah, the treasure !"—and he died.
I asked the *golden sun* and *silver spheres*,
Those bright chronometers of days and years;
They answered,—" Time is but a meteor glare,"
And bade us for eternity prepare.
I asked the *seasons*, in their annual round,
Which beautify or desolate the ground ;
And they replied (no oracle more wise),
" 'Tis Folly's blank, and Wisdom's highest prize !"
I asked a *spirit lost*, but ah ! the shriek
That pierced my soul ! I shudder while I speak !
It cried, " A particle ! a speck ! a mite
Of endless years, duration infinite !"
Of *things inanimate*, my *dial* I
Consulted, and it made me this reply—
" Time is the season fair of living well,
The path of glory, or the path of hell."
I asked my *Bible*, and methinks it said,
" Time is the *present* hour, the past is fled ;
Live ! live to-day ! to-morrow never yet
On any human being rose or set."
I asked old *Father Time* himself at last,
But in a moment he flew quickly past !—
His chariot was a cloud, the viewless wind
His noiseless steeds, which left no trace behind.
I asked the *mighty Angel*, who shall stand,
One foot on sea, and one on solid land,
" By Heaven !" he cried, " I swear the mystery's o'er;
Time *was*," he cried, " but Time shall be no more !"

Marsden.

DERIVATIVES OCCURRING IN SECTION II.

Roots and Meaning.	Derivatives and Meaning.
Ager, agri, a field	*Agri*cultural, belonging to farming
Aqua, water	*Aqua*tic, living in or on the water
Actos or arctus, two constellations in the form of bears near the north pole	*Arct*ic towards the north
Arma, arms, weapons	*Arma*da, a naval warlike force
Acer, acris, sharp, acutus, sharpened	*Acut*e, sharp, pointed
Aequus, equal, even	*Equ*ator, a line round the globe dividing it into two equal parts
Aridus, dry, parched	*Arid*, dry
Amplus, large	*Ampl*e, large, liberal
Augeo, I increase, auxi, I increased	*Aug*ment, to increase, *aux*iliary, helping
Campus, a plain or open field	En*camp*, to pitch tents
Canis, a dog	*Can*ine, having the properties of a dog
Canonicus, a canon or prebendary of a church	*Canon*, a dignitary in a cathedral church
Caput, capitis, the head	Capital, chief, principal
Cardinalis, chief	Cardinal, a dignitary in the church of Rome
Caro, carnis, flesh	*Carn*ivorous, flesh-eating, (see *Voro* 1)
Celer, swift	Ac*celer*ate, to hasten forward
Centrum, centri, the centre or middle	Ec*centr*ic, irregular, con*centr*ic, having one common centre
Chrusos, gold	*Chrys*alis, the state of an insect before it has wings
Circus, a circle	*Circ*le, a round space, en*circ*le, to surround
Clivus, clivi, a declivity or sloping ascent	De*clivit*y, gradual descent
Creo, I create, creatus, created	*Creat*or, God, who gives existence
Crimen, criminis, a crime	Criminal, guilty of a crime
Cumulus, a heap or pile	Ac*cumul*ate, to pile up
Decor and decorum, comeliness	*Decor*ate, to adorn, to beautify
Debeo, I owe, debitum, indebted	In*debt*ed, having incurred a debt
Domus, a house, a home	*Dom*estic, belonging to the house
Durus, hard,	*Dur*ation, continuance, en*dure*, to last
Erro, I wander	Un*err*ing, not deviating

Roots and Meaning.	Derivatives and Meaning.
Extraneus, strange, foreign	*Extraneous*, belonging to a different subject
Fabrica, a shop or workhouse	*Fabric*, a building
Fames, hunger	*Fam*ine, want, scarcity of food
Fecundus, fruitful	*Fecund*ity, fruitfulness
Ferox, ferocis, fierce, cruel	*Feroc*ity, fierceness
Flagro, I burn, flagratus, consumed	Con*flagrat*ion, burning
Forma, form, beauty	Con*format*ion, the relative form of things
Functus, performed or discharged	*Funct*ion, employment, office
Fundus, a foundation	*Found*ation, basis of an edifice
Ge, the earth	*Ge*ography, knowledge of the earth's surface
Genus, generis, a kindred or race	*Genus*, a class of being including many species
Gero, I bear or carry, gestus, borne	Dig*est*, to range in order, to soften by heat
Gramen, graminis, grass	*Gramni*vorous, grass-eating
Grex, gregis, a flock, a herd	*Greg*arious, going in flocks or herds
Glisco, I glisten, or wax fat	*Glis*ten, to shine
Grandis, great	*Grand*eur, state, magnificence
Haemorrhagia, excessive bleeding	*Hemorrhage*, a violent flow of blood
Haurio, I draw, exhaust, haustus, drawn	Ex*haust*, to drain or draw out
Hilaris, merry, pleasant	Ex*hilar*ate, to make cheerful
Hospes, hospitis, a host or guest	In*hospit*able, unkind to visitors
Imbecilis, weak	*Imbecil*ity, weakness
Impetus, violence, force	*Impetus*, violent tendency to any point
Jacio, I throw, jactus, thrown	Con*ject*ure, to guess, Pro*ject*ion, shooting forward
Labor, labor, toil	*Labor*atory, a chemist's work-room
Liber, the inner bark, a book	*Liber*, the inner bark of a tree
Luna, the moon	Sub*lun*ary, beneath the moon, earthly
Lumen, light	*Lumin*ary, anything that gives light
Ludo, I play, lusus, played	Al*lude*, to hint, E*lude*, to escape by stratagem, Il*lus*trate, to explain
Magnus, great, major, greater	*Magn*itude, greatness, *Maj*estic, stately
Malus, bad	*Mal*ignant, envious, of an ill intention

ROOTS AND MEANING.	DERIVATIVES AND MEANING.
Malleus, a mallet or hammer	*Mall*et, a wooden hammer, *Malle*able, capable of being spread by beating
Manus, the hand	*Manu*script, a written book
Maturus, ripe	*Matur*ity, ripeness
Minax, minacis, threatening	*Menace*, to threaten
Mens, mentis, the mind	*Ment*al, belonging to mind
Mergo, I plunge or dip	E*merge*, to rise out of
Metron, a measure	Dia*meter*, a line in a circle passing through the centre
Migro, I remove away, migratus, emigrated	*Migra*tory, disposition to change place
Minor, less	*Minia*ture, a small portrait
Modus, a manner	*Mod*el, a copy to be imitated
Moneo, I move, motus, moved	E*mot*ion, disturbance of mind, Re*mov*al, act of changing place
Munus, muneris, a gift	*Muni*ficence, liberality
Multus, much or many	*Multi*ply, to increase in number
Nascor, I am born, natus, born	In*nate*, inbred, born with us
Necto, I join or link together	Con*nect*, to bind together
Noceo, I hurt	Ob*nox*ious, liable, exposed
Obliquus, sideway	*Obliqu*e, not direct
Oleo, I yield a scent	*Ol*factory, having the sense of smelling
Opus, operis, a work	*Oper*ation, a work, an action
Pars, partis, a part or share	Im*part*, to communicate, to give
Pes, pedis, a foot	Quadru*ped*, four-fold, im*pede*, to hinder
Placeo, I please	Com*plac*ency, satisfaction
Pluma, a small feather	*Plum*age, feathers
Praeda, prey, booty	*Pred*atory, plundering
Qualis, of what kind, such as	*Quali*ty, nature, essence
Quatuor, four	*Quad*ruple, four-fold
Rapax, rapacis, ravenous	*Rapac*ious, given to plunder
Repto, I creep	*Rept*ile, an animal that creeps
Rivus, a brook or river	*Riv*ulet, a small stream or brook
Rota, a wheel	*Rota*tion, a turn of a wheel
Salio or salto, I leap	Re*sult*, to fly back, a consequence
Sanguis, sanguinis, blood	*Sanguin*ary, cruel
Signum, a sign, a seal	As*sign*, to mark out, de*sign*, to plan
Simplex, simplicis, single, simple	*Simplic*ity, plainness
Spargo, I sprinkle, Sparsus, sprinkled	Di*sperse*, to scatter
Stino, I fix	Ob*stin*ate, fixed, de*stin*e, to purpose
Stratus, strewed, laid along	*Strata*, beds, layers

Roots and Meaning.	Derivatives and Meaning.
Tango, I touch, Tactus, touched	De*tach*, to separate
Tempero, I mingle or allay	*Temper*ature, moderation
Texo, I weave, Textus, woven	*Tex*ture, a web, manner of weaving
Tribuo, I give or ascribe	Dis*tribute*, to deal out
Utilis, useful	*Utili*ty, usefulness
Unda, a wave	*Und*ulate, to move as waves
Veho, I carry, Vectus, carried	Con*vey*, to carry from place to place
Vermis, a worm or grub	*Verm*in, any noxious animal
Vertex verticis, the head	*Vertic*al, placed in the zenith
Via, a way	Ob*vi*ate, to meet in the way, to prevent

The Roots *of the following* Derivatives *will be found in the List preceding Section I., and are now given without the meaning.*

Roots.	Derivatives and Meaning.
Ago.	In*activ*ity, idleness
Animus.	Magn*amim*ity, greatness of mind
Annus.	Per*enni*al, containing many years
Bibo.	Im*bibe*, to drink in
Cado.	De*cay*, to fall away De*cid*uous, falling
Capio.	*Cap*able, able to do or take *Capt*ure, a seizure Con*cep*tion, notion, idea
Cedo.	Ac*cess*, approach Ex*ceed*, to go beyond Re*cess*, retreat, suspension of business In*cess*ant, constant
Cella.	*Cell*ular, full of little cavities
Chronos.	*Chron*ic, of long duration
Clemens.	In*clemen*cy, severity
Curro.	*Curr*ent, passing Ex*curs*ion, an expedition Pre*curs*or, forerunner
Duco.	Con*duc*tor, one who leads or directs In*duce*, to persuades Pro*duce*, to bring forward, to bear
Emo.	Ex*empt*, not liable
Facio.	Manu*fac*ture, to make things by hand or machinery. [See *manus*, 2]
Fluo.	*Flow*, to run as water *Flu*id, anything that flows Re*flux*, backward course, ebb Super*flu*ous, more than enough

Roots.	Derivatives and Meaning.
Gradior.	Planti*grade*, a class of animals that go on the sole of the foot, *broadfooted*
Graphic.	*Graphi*cal, well delineated
Jungo.	Con*junction*, a joining
Latus.	*Lati*tude, breadth, distance from the equator
Levis.	E*lev*ate, to lift up
Lego.	*Lect*ure, a discourse on science, &c. Col*lect*, to gather together
Lego.	*Lig*ament, band
Medeor.	*Med*icinal, having the power of healing Re*med*y, a cure
Misceo.	Inter*mix*, to mingle together
Mechane.	*Machine*, an engine
Nuncio.	De*nounce*, to proclaim, a threat
Paro.	Se*par*ate, to disunite Trans*par*ent, clear,(see trans)
Pendeo. or Pendo.	Ap*pend*age, something added Com*pens*ate, to reward Sus*pend*, to hang, to delay
Peto.	Ap*pet*ite, hunger, longing Re*peat*, to recite, to try again
Pleo.	Re*plen*ish, to fill Sup*ply*, to fill up, to furnish

Roots.	Derivatives and Meaning.
Pono.	*Pos*ture, situation Decom*pose*, to separate the parts De*pose*, to put down Op*pos*ite, placed in front
Premio.	Im*press*ion, mark made by pressure Op*press*ive, cruel
Puto.	Com*pute*, to count or reckon
Quaero.	In*quisi*tive, prying curious Re*quire*, to demand Re*quis*ite, necessary
Scribo.	Manu*script*, a book written, not printed. [*Manus*, hand]
Seco.	In*sect*iverous, living on insects Inter*sect*ion, the point where lines cut each other
Sedeo.	Re*side*, to dwell
Sisto.	*Stat*ionary, fixed Sub*sist*ence, being, support
Solvo.	Dis*solve*, to melt, to break up
Specio.	*Spect*acle, a show, a sight Specimen, a sample A*spect*, look, appearance Pro*spect*, distant view
Spiro.	*Spir*al, curved,winding
Stinguo.	In*stinct*, the power that guides the actions of brutes

Roots.	Derivatives and Meaning.
Struo.	In*stru*ment, a tool, means employed Ob*struct*, to block up
Sumo.	As*sume*, to take, to claim
Tego.	*Teg*ument, a covering
Tendo.	In*tense*, forced, ardent, very great
Teneo.	*Ten*ant, one who holds lands, &c., of another *Ten*acious, holding fast Sus*ten*ance, support
Terminus.	De*termin*ate, fixed, settled
Traho.	*Tract*able, manageable At*tract*ive, inviting Ex*tract*, to draw out, to select
Valeo.	Pre*vail* to overcome Pre*val*ence, influence, superiority
Veho.	Con*vey*, to carry from place to place
Venio.	Con*vene*, to come together Con*ven*ient, suitable In*vent*, to find out Inter*vene*, to come between Pre*vent*, to hinder
Verto.	Con*vert*, to change Contro*vert*, to dispute. [See *contra*] Tra*verse*, to cross
Video.	E*vid*ent, plain
Vinco.	In*vinc*ible, unconquerable
Vivo.	*Viv*acious, sprightly Re*vive*, to renew Sur*vive*, outlive
Volvo.	*Vol*uminous E*volution*
Voro.	*Vor*acious, greedy Carni*vorous*, feeding on flesh Grami*nivorous*, feeding on grain

SECTION II.

NATURAL HISTORY.

THE STUDY OF NATURE RECOMMENDED TO THE YOUNG.

Lo! on our varied page creation smiles
In her immingling charms; the waves and winds,
The fruits and flowers, and all that lives and moves,
Or beautifies the world, combine to bring
Exhaustless themes for wonder and for praise.

Montgomery.

You have all, my young friends, in your minds, naturally, a *spirit of inquiry*, a *desire for knowledge*—this spirit is imparted to you by your Creator. Now, as this desire will be directed toward some point or other, it is of unspeakable importance that it should be directed *aright*. Among the various branches of knowledge which present themselves to the inquiring mind, there is no one more interesting in its form, or gratifying in its results, than *Natural History*.—This subject is one of universal interest, and has a very high claim upon your attention. The study of the Creator's works enlarges our ideas of his Power, Wisdom, and Goodness; and reminds us also of our relation to Him "in whom we live, and move, and have our being." To accustom yourselves to recognize the hand of God in all the appearances of Nature, to observe the fitness of all the various parts to each other, and the employment of *means* for the attainment of *ends*, is an exercise most worthy of the high faculties your Maker has bestowed upon you, and cannot fail to promote your *intellectual* and *moral* improvement.—To whatever quarter you turn your attention, you will find ample materials for this study. "In every blade that trembles in the breeze," in every flower, in every glittering insect, in every living thing that moves in the waters, or upon the earth, are you presented with displays of the wonderful works of God. And few, indeed, can trace with care "the operations of his hand," and not feel emotions like those of a good man of whom you read in the Bible, when he exclaimed—

> Oh Jehovah, how manifold are thy works!
> In *wisdom* hast thou made them all.

The study of Nature, it has been said, is of great importance to you, because of its *beneficial effects upon your minds.* It will strengthen their powers—it will accustom them to sober and solid thought—it will restrain them from running loose under the guidance of unbridled imagination.

But beside these advantages, this study recommends itself to the young, because of the *positive pleasure* which it imparts. A person who is regardless and thoughtless of passing scenes, deprives himself of one of the highest gratifications of which his nature is capable. Be careful, then, to have your eyes always open—pay attention to whatever you see. Hundreds deprive themselves, not only of much pleasure, but of much benefit, because though having eyes, *they see not.* One person in passing along through a part of the country will feel no interest, and see nothing worthy of attention; while another, going the very same road, will be quite delighted with the wonders he beholds, and the multitude of interesting objects passing under his review.—And what is the cause of this? The one man, though seeing, has not learned to *observe*—the other *has.* To see *aright* and *well,* then, is an important art,—it is the result of a habit which you should very earnestly endeavour early to form. To encourage you, recollect that the very weeds that grow by the road-side are full of interest to those who know about them, and will take pains to examine how they are formed, and what purposes they are meant to serve Look then at the gnats dancing in the sun-beam—look at the gauze-winged flies—and look at the gilded beetles. Examine the caterpillers spinning their webs, or shrouding themselves in a leafy covering. The birds of the air construct their nests with a skill you can never display—the cunning snake that glides along so nimbly and conceals its glittering body in the grass—the fishes that sport in the stream with so much agility, and so often amuse and detain you when on your way to school—these, and all such things, are fitted to call up trains of reflection, and please the contemplative mind. Observe, too, how nicely, how beautifully the hair, feathers, or scales, the teeth or the claws, of the different animals are fitted to their residences and their modes of life, and you will then be led to trace the operations of that great God, who is the contriver of the great plan of the universe. For to gratify *curiosity* only, is to lose sight of their *end* and *relation to man.* I would have you, in short, my young friends, see God in every thing; and by forming in your minds the habit of referring all you see to him, you will find on every hand stores of knowledge, which, laid up in the memory and understanding, will ripen and augment with your constantly expanding minds, into Practical Wisdom.

In the various lessons which follow, respecting the world and its productions, you will receive assistance in the study of Nature, which, if duly improved, will contribute to your pleasure and your future usefulness.

Compiled.

Though Man, as God's own miniature, reveal
The grace of beauty, and the glow of soul,
And Deity be chartered on his brow,
The *Brutes*, and plumy pilgrims of the air,
The *Insect* tribe, and all the *Scaly* troop
That wing their liquid way—proclaim a God!
Behold the Lion bounding from his den
With red and rolling eye!—or hear the Bear,
While grimly glancing o'er the ice-clad waste,
Loading the wind with his tremendous howl!—
Or see the Leviathan uproot the deep,
And lash the ocean into storm!—or mark
The kingly Eagle pierce the cope of heaven,
And shiver the contending clouds!—Great God!
These give to mortal eye a glimpse of Thee!

Montgomery.

THE THREE KINGDOMS OF NATURE.

Natural objects have been generally arranged for the purpose of classification, under three grand divisions of *minerals*, *vegetables*, and *animals*. *Minerals* are natural bodies destitute of organization and life: *vegetables* or *plants* are natural bodies endowed with organization and life, but destitute of voluntary motion and sensation; and *animals* are natural bodies which possess organization, life, sensation, and voluntary motion.

1. *Minerals.*—If we penetrate beneath the surface of the earth, we discover there a remarkable arrangement. Instead of a general uniform appearance, as we see on the surface, we pass through different substances, as clay, gravel, sand, &c., deposited in *beds or strata* of various thicknesses, from a few inches to a great many feet. These lie, for the most part, nearly horizontal; but in some instances, particularly in mountainous countries, they take different degrees of inclination; and in places where the country consists of gentle sloping hills and vales, the beds have a waving or bending form.

Those *strata*, as deep as the curiosities or necessities of mankind have induced them to explore, satisfactorily demonstrate the wisdom which has been displayed in the arrangement of materials requisite for the use of men and animals. The first layer is frequently a rich black mould, formed almost wholly of decomposed animal and vegetable remains: this yields sustenance to the vegetable productions, and thereby becomes the actual, though not the immediate, support of the whole mineral creation. In all countries which, like Canada, have been covered with forests for many ages, this mould, owing to the constant addition it receives of vegetable matter, is always much thicker than in other circumstances. Beneath this first layer is often found a thick bed of clay, that furnishes to man a substance of which to make bricks, tiles, various kinds of pottery, and innumerable other articles for the comfort of social life. Next are deposited vast beds of gravel, that are of use in numerous points of view. Underneath this are continually-varying *strata* of sand-stone, lime-stone, &c., which not only serve for the construction of buildings, and other important purposes, but also frequently surround mines which contain the valuable metals.

The most simple and natural division of minerals is into four classes,—*stones, salts, combustibles,* and *metals.* Stones are subdivided into *earthy* and *saline;* and metals into *malleable* and *brittle.*

2. *Vegetables.*—The principal parts of plants are, the *root;* the *herb, tree,* or *plant* itself; and the flower and fruit.

The *roots* of plants and trees, having nothing pleasing to the eye, are, for the most part, hidden from the view; they are nevertheless of great importance in the vegetable economy; they are furnished with a set of vessels by means of which they draw moisture from the earth, and fix the plant in the spot it is designed to occupy. They are of various kinds, and have different periods of duration; and they are often observed to suit themselves in an extraordinary manner to local inconveniences,—changing their direction, for instance, when they meet a stone,—turning aside from barren into fertile ground,—and when stationed on the rocky edge of a deep ditch, creeping down one side and ascending the other, so as to place themselves in richer soil.

The plant itself consists of various parts, curiously arranged and adapted for performing all the functions of vegetable life. First of all is the *bark,* covered externally with the *cuticle.* The *cuticle* is furnished in many parts with pores—by which a communication is kept up between the internal structure and the atmosphere. To the cuticle succeeds the *cellular integument,* often of a green colour; and in the trunks of ordinary trees we next find the *cortical layers* and the *liber,* which form the innermost boundary of the bark. Lastly, the wood which sometimes contains within it the *pith,* respecting the use of which philosophers are not agreed. The wood itself is divided into two parts,—the true wood, and the *alburnum;* the latter is the new or sap wood, as it is commonly called, and is softer and of a paler colour. The annual depositions of woody matter produce these circles visible in almost all woods, and furnish means by which the ages of timber may be calculated, as well as contribute greatly to the beauty of the woody surface. The *sap vessels* ascend from the points of the roots, through the superficial alburnum, and enter the leaves in a central arrangement round the pith. The fluid destined to nourish a plant, being absorbed in the root, becomes sap, and is carried up by these vessels into the leaves, where it undergoes a wonderful change, and is brought back through another set of vessels, down the leaf stalks into the liber, where it is supposed to deposite the principal secretion of the tree. Thus to the bark of the oak, hemlock, &c., a tanning principle is communicated;—to the Peruvian bark what has been found so beneficial in fevers;—to the cinnamon, its grateful aromatic taste;—and to the sandal wood its never-dying fragrance.

The parts of *fructification*, are the *calyx*, *corrolla*, *stamens*, *pistils*, *seed-vessels*, *seeds*, and *receptacle*. The *calyx*, or flower-cup, is the green part, which is situated immediately beneath the blossom; the *corrolla*, or blossom, is that coloured part of every flower, on which its beauty chiefly depends. The *stamens* surround the pistils, and consist each of a *filament*, or thread, and an anther or summit; which last, when ripe, contains a fine powder called *pollen*. At the foot of the pistil is situated the *germen;* this, when grown to maturity, is that part which contains the seeds; this occurs in a great variety of forms; in one it is a *nut*, as the butternut; in another a *berry*, as the gooseberry; in a third the seed is enclosed in a sort of *box*, as the poppy; in a fourth in a *pod*, as in the pea; or lastly in a *cone*, as in the pine.

3. *Animals.*—The objects comprehended within the *animal* kingdom are divided into six classes,—Mammalia; Birds; Amphibia, or Amphibious Animals, including all Reptiles; Fishes; Insects; and Worms.

The class Mammalia consists of such animals as produce *living* offspring, and nourish their young ones with milk supplied from their bodies; and it includes quadrupeds, bats, seals, and whales. The class Birds, includes all such animals as have their bodies clad with feathers.

Under the class Amphibia, are arranged such animals as have a cold, and generally a naked body. They breathe chiefly by lungs, but have the power of suspending breathing for a long time; they are extremely tenacious of life, and can repair certain parts of their bodies which have been lost; they are able to endure hunger, sometimes even for months without injury. Fishes constitute the fourth class of animals; they are all inhabitants of the water, in which they move by certain organs called *fins;* they breathe by *gills.* Insects are so called from the appearance of their bodies, seeming intersected, or cut into two parts. They have commonly *six* or more legs, besides wings, and *antennæ* or horns, which are instruments of touch; and they nearly all go through certain great *changes* at different periods of their existence. The sixth class of animals consists of Worms, which are slow of motion, and have soft and fleshy bodies. These animals are principally distinguished from those of the other classes by having *feelers* by which they examine their way as they advance.

Such are the three kingdoms of Nature, and their principal divisions, according to the system of Linnæus, a distinguished naturalist of Sweden, who flourished about the middle of the eighteenth century. These kingdoms, though distinct, are naturally connected; and it is not always easy to say of a natural object to which of them it belongs. The mineral kingdom, indeed, can never be confounded with the other two; for its objects are masses of mere dead unorganized matter, growing indeed by the addition of extraneous substances, but not fed by nourishment taken into living structures, as is the case with vegetables and animals.

McCulloch's Elementary Reading.

ON THE EARTH, AS ADAPTED TO THE NATURE OF MAN.

If we consider the earth as allotted for our habitation, we shall find that much has been given us to enjoy, and much has been left us to improve; that we have ample ground for gratitude, and no less for industry. In those great outlines of nature, to which art cannot reach, and where our greatest efforts must have been ineffectual, God himself has finished these with amazing grandeur and beauty. Our beneficent Father has considered these parts of nature peculiarly his own; as parts which no creature could have skill or strength to amend, and therefore made them incapable of alteration, or of more perfect regularity.

The heavens and the firmament show the wisdom and the glory of the Workman. Astronomers, who are best skilled in the symmetry of systems, can find nothing there that they can alter for the better. God made these perfect, because no inferior being can correct their defects. When, therefore, we survey nature on this side, nothing can be more splendid, more correct, or more amazing. We there behold a Deity residing in the midst of a universe, infinitely extended every way, animating all, and cheering immensity with his presence. We behold an immense and shapeless mass of matter, formed into worlds by his power, and dispersed at intervals, to which even the imagination cannot travel. In this great theatre of his glory, a thousand suns like our own animate their respective systems, appearing and vanishing at divine command. We behold our own bright luminary, fixed in the centre of its system, wheeling its planets in times proportioned to their distances, and at once dispensing light, heat, and action. The earth, also, is seen with its twofold motion, producing by the one the change of seasons, and by the other the grateful vicissitudes of day and night. With what silent magnificence is all this performed! With what seeming ease! The works of art are exerted with uninterrupted force, and their noisy progress discovers the obstructions they receive; but the earth, with a silent, steady rotation, successively presents every part of its bosom to the sun, at once imbibing nourishment and light from that parent of vegetation and fertility. But not only are provisions of heat and light thus supplied, but its whole surface is covered with a transparent atmosphere, that turns with its motion, and guards it from external injury. The rays of the sun are thus broken into a genial warmth; and while the surface is assisted, a genial heat is produced in the bowels of the earth, which contributes to cover it with verdure. Water also is supplied in healthful abundance to support life and assist vegetation. Mountains arise to diversify the prospect, and give a current to the stream. Seas extend from one continent to the other, replenished with animals, that may be tined to human support; and also serving to enrich the earth with a sufficiency of vapour. Breezes fly along the surface of the fields to promote health and vegetation. The coolness of the evening invites to rest, and the freshness of the morning renews for labour. Such are the delights of the habitation assigned to man. Without any one of these he must have been wretched, and none of these could his own industry have supplied. But while many of his wants are thus kindly furnished on the one hand, there are numberless inconveniencies to excite his industry on the other. This habitation, though provided with all the conveniencies of air, pasturage, and water, is but a desert place without human cultivation. The lowest animal finds more conveniencies in the wilds of nature, than he who boasts himself their lord. The earth itself, where human art has not pervaded, puts on a frightful gloomy appearance. The forests are dark and tangled; the meadows overgrown with rank weeds; and the brooks stray without a determined channel. To the savage, uncontriving man, the earth is an abode of desolation, where his shelter is insufficient and his food precarious. A world thus furnished with advantages on one side, and inconveniencies on the other, is the proper abode of reason, is the fittest to exercise the industry of a free and a thinking creature. Those evils, which art can remedy, and foresight guard against, are a proper call for the exertion of his faculties. God beholds with pleasure that being which he has made, converting the wilderness of his natural situation into a theatre of triumph; bringing all the tribes of nature into subjection to his will; and producing that order and uniformity upon earth, of which his own heavenly fabric is so bright an example.

Goldsmith.

THE OCEAN.

The Ocean surrounds the earth on all sides, and penetrates into the interior parts of different countries, sometimes by large openings, and frequently by small straits. Could the eye take in this immense sheet of waters at one view, it would appear the most august object under the whole heavens It occupies a space on the surface of the globe at least three times greater than that which is occupied by the land;—comprehending an extent of 148 millions of square miles.

The chief properties of the ocean, to which your attention is to be turned in the rest of this lesson, are its depth, the quantity of water it contains, its motions, temperature, and saltness. With respect to its *depth*, no certain conclusions have yet been formed. It has never been actually sounded to a greater depth than a mile and 66 feet. Along the coast, its depth has always been found proportioned to the height of the shore: where the coast is high and mountainous, the sea that washes it is deep; but where the coast is low, the water is shallow. The numerous islands scattered everywhere through the ocean, demonstrate that the bottom of the water, so far from uniformly sinking, sometimes rises into lofty mountains. It is highly probable, that its depth [illegible] somewhat in proportion to the elevation of the land; and if [illegible] its greatest depth will not exceed four or five miles; for there is no mountain that rises higher above the level of the sea.

The ocean has *three kinds of motions.* The first is that undulation produced by the wind, and is entirely confined to its surface. The second motion is that continual tendency which the whole water in the sea has towards the west, which is greater near the equator than towards the poles. It begins on the west side of America, where it is moderate; but as the waters advance westward their motion is accelerated; and after having traversed the globe, they return, and strike with great violence on the *eastern* shore of America. Being stopped by that continent, they rush with impetuosity into the Gulf of Mexico, thence they proceed along the coast of North America, till they come to the south side of the great bank of Newfoundland, when they turn off and run down through the Western Isles. This motion is, most probably owing to the diurnal revolution of the earth on its axis, which is in a direction contrary to the motion of the sea. The third motion of the sea is the *tide,* which is a regular swell of the ocean every twelve and a half hours. This motion is now ascertained to be owing to the attractive influence of the moon, and also partly to that of the sun. There is always a flux and reflux at the same time in two parts of the globe, and these are opposite to each other. So that, when our Antipodes have high-water, we have the same. When the attractive powers of the sun and moon act in the *same*, or in *opposite* directions, which happens at *new* and *full moon*, the highest or *spring-tides* occur; but when the lines of their attraction are at right-angles to each other, which happens at the *quarters*, the lowest or *neap-tides* are occasioned.

As water is a worse conductor of heat than land, that is, absorbs and gives out heat more slowly, the *temperature* of the sea is subject to fewer and less extensive variations than the land. It is never so cold in winter, nor so hot in summer; for, when the surface of the water is cooled in winter, it becomes specifically heavier than the lower stratum, and sinks; and when it is more heated in summer, it is carried off by evaporation, and in this way the uniformity of temperature is preserved.

The *saltness* of the sea is one of its most distinctive features. It contains a great quantity of saline substances, to which it owes its peculiar taste. Besides common salt, or muriate of soda, sea-water is impregnated with muriate of magnesia, sulphate of magnesia, and sulphate of lime. It is easier to perceive the great advantages resulting from this saltness than to discover its origin. Without this saltness, and without the agitation in which they are continually kept, the waters of the sea would become tainted, and would be infinitely less adapted for the motion of vessels; and probably it is to this also that the inhabitants of the ocean owe their existence. The ocean is replenished with innumerable inhabitants, all fitted for the element in which they reside; and all, so far as we are capable of judging, enjoying a happiness suited to their natures. This mighty expanse of water is the grand reservoir of nature, and the source of evaporation which enriches the earth with fertility and verdure. Every cloud which floats in the atmosphere, and every fountain, and rivulet, and flowing stream, are indebted to this inexhaustible source for those watery treasures which they distribute through every region of the land.

Such is the ocean—a most stupendous scene of Omnipotence, which forms the most magnificent feature of the globe we inhabit. Whether we consider its immeasureable extent, its mighty movements, or the innumerable beings which glide through its rolling waves—we cannot but be struck with astonishment at the grandeur of that Almighty Being who holds its waters "in the hollow of his hand," and also has said to its foaming surges, "Hitherto shalt thou come, and no farther, and here shall thy proud waves be stayed." "Will ye not tremble at my presence? saith the Lord! which have placed the *sand* for the bound of the sea by a perpetual decree, that it cannot pass it; and though the waves thereof toss themselves, yet they cannot prevail; though they roar yet they cannot pass over it."—*Jer.* v. 22.

The wonder referred to in this passage will appear the greater when it is considered that the water is not only higher than the earth, and would naturally rise above it; but the water of the sea generally rises up into that general round which characterises our globe. And though the Creator has bounded it in some places by vast rocks, which lift their heads above its tremendous billows, yet in most places it is pent up by feeble sand. When the waves roll furiously in a storm, and rise so high above the level of the shore as to menace the overflow of the whole neighbourhood, as soon as they reach their sandy limits, they bow their foaming heads and fall back into their appointed place.

Compiled.

ADDRESS TO THE OCEAN.

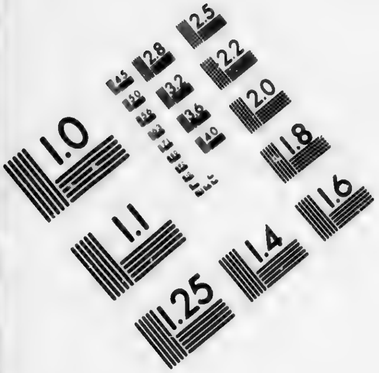
Roll on, thou deep and dark blue ocean—roll!
Ten thousand fleets sweep over thee in vain;
Man marks the earth with ruin—his control
Stops with the shore; upon the watery plain
The wrecks are all thy deed, nor doth remain
A shadow of man's ravage, save his own.
When for a moment, like a drop of rain,
He sinks into thy depths with bubbling groan,
Without a grave, unknell'd, uncoffin'd, and unknown.

His steps are not upon thy paths—thy fields
Are not a spoil for him,—thou dost arise
And shake him from thee; the vile strength he wields
For earth's destruction, thou dost all despise,
Spurning him from thy bosom to the skies,
And send'st him, shivering, in thy playful spray,
And howling to his gods, where haply lies
His petty hope in some near port or bay,
And dashest him again to earth; there let him lay.

The armaments which thunder-strike the walls
Of rock-built cities, bidding nations quake,
And monarchs tremble in their capitals,—
The oak leviathans, whose huge ribs make
Their clay creator the vain title take
Of lord of thee, and arbiter of war;
These are thy toys, and as the snowy flake,
They melt into thy yest of waves, which mar
Alike the Armada's pride, or spoils of Trafalgar.

Thy shores are empires changed in all save thee—
Assyria, Greece, Rome, Carthage, where are they?
Thy waters wasted them while they were free,
And many a tyrant since; their shores obey
The stranger, slave, or savage; their decay
Has dried up realms to deserts:—not so thou,
Unchangeable save to thy wild waves' play—
Time writes no wrinkle on thine azure brow—
Such as creation's dawn beheld, thou rollest now.

Thou glorious mirror, where the Almighty's form
Glasses itself in tempests; in all time,
Calm or convulsed—in breeze, or gale, or storm,
Icing the pole, or in the torrid clime
Dark-heaving; boundless, endless, and sublime—
The image of Eternity—the throne
Of the Invisible; even from out thy slime



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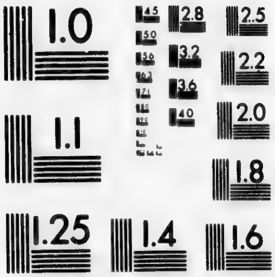

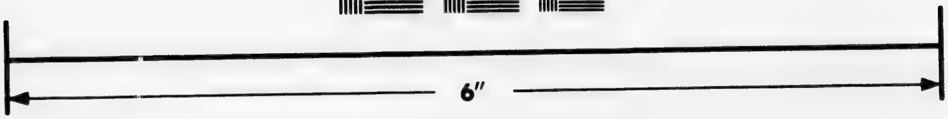

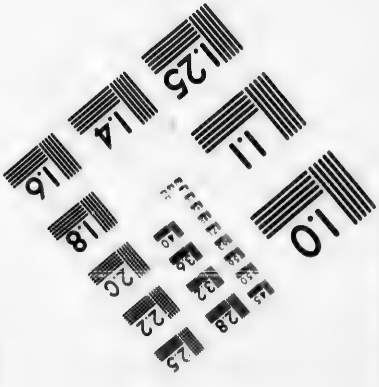

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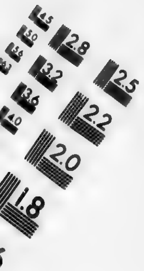
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The monsters of the deep are made; each zone,
Obeys thee; thou goest forth, dread, fathomless, alone.

And I have loved thee, Ocean! and my joy
Of youthful sport was on thy breast to be
Borne, like thy bubbles, onward; from a boy
I wantoned with thy breakers—they to me
Were a delight; and if the freshening sea
Made them a terror—'twas a pleasing fear,
For I was, as it were, a child of thee,
And trusted to thy billows far and near,
And laid my hand upon thy mane—as I do here.

Byron.

ON PLANTS.

In a former lesson *on the three kingdoms of nature*, a general account was given of the structure of *Plants;* and as they are objects which should be interesting to us all, a few more particulars regarding them require our attention. A carefu examination of their conformation and of their functions as organized living beings, is well fitted to expand and elevate the mind, and raise its contemplations in wonder and gratitude to their Creator, who is likewise the "former of our bodies and the father of our spirits."

Roots.—Plants, like animals, feed upon the food designed and furnished by Divine Providence for their nourishment; and with respect to plants, as has been proved by experiment, when they have digested the food taken up from the soil, they reject, similarly to animals, the portion thereof which is not suited to their wants—discharging a part of this refuse into the air around them, in the form of gas and vapour, and another part into the earth in which they grow, in the form of slime. There is one obvious and very remarkable difference with respect to the feeding of plants and animals which must be taken into account in all inquiries on the subject; namely, the circumstance that animals can travel about in search of food, and when it becomes scanty in one place they can go and seek it in another. Not so the plant, which is rooted in a particular spot, and cannot move whatever be the state of the supply of food—a supply which may fail, and does fail in numerous instances. But this is not all, for according to the discovery already mentioned, the roots of the plants, by the tips of which it feeds, must, from its stationary position, remain amidst its own rejections, which must of course diminish its means of nourishment. Now the means which are provided for plants to obviate this circumstance, furnish some very interesting facts and inferences.

One of these means may be observed in what are termed creeping plants, such as the strawberry and the sweet violet. As soon as a root of any such plant is properly fixed in the ground, it begins to feed on the plant-food in the soil, and at the same time to fill the soil with its refuse, and thus both exhausts the food and renders it less nourishing. As soon as the plant begins to feel this, the means for obviating the disadvantage come into operation. The root itself cannot remove of its own accord, but shoots immediately spring and go off in all directions around the root in quest of fresh soil, not exhausted by the original root. Accordingly the older the plants are, or the longer they have stood in the same spot, the greater number of runners they will send off. And it is worthy of notice that almost all those perennial plants which cannot escape by runners, have a peculiar construction to enable them to scatter their ripe seeds to some distance from the parent stem.

Again, in other plants, such as the several sorts of trees, with respect to which self-removal is impossible, there is a provision of the same kind made by sending up from the roots suckers, that may push *their* individual roots beyond the exhausted soil. Cultivators have long been well aware of these facts, although not of all the causes; and are generally aware of the importance of supplying round the roots sufficient manure or fresh soil to prevent the trees and bushes sending off suckers. All plants do not exhaust the soil equally soon, and while some exhaust it for themselves they leave behind them more plant-food for other kinds. All slow-growing trees exhaust the soil also slowly, because their roots proceed annually over a very limited space, while the quantities of leaves they shed every fall, decay, and form a rich top-dressing of the best description. Such trees therefore rarely send up suckers. In short, it is owing to the principle just explained, that many plants, such as the rose and raspberry, require to be removed every three or four years.

Leaves.—Leaves, which consist of fibres arranged in a kind of network, not only contribute to the beauty of plants, but perform functions of essential importance to them. They are, as is well known, of various shapes, and of different sizes. Some are so small as to be distinctly seen only though a microscope, and others, those of the Talipot palm, for instance, so large as to measure above 30 feet in circumference. They also fall at different times, and are differently denominated according to the period of their fall, being caducous, deciduous, or perennial, according as they fall in summer, in autumn, in spring, or only in the course of years. Their use in the vegetable economy is now well understood, it being distinctly ascertained that they serve as lungs to the plant. The sap being carried into them by one set of vessels, is there spread out and exposed to the action of air and light, and exhales its superabundant moisture, and having undergone certain important changes (probably similar to those undergone by the blood in the lungs), is received into another set of vessels, to be conducted downward and distributed in the cortical cells, depositing there the various secretions, requisite for the nourishment, health and preservation of the stem and root.

Leaves perspire and absorb a considerable quantity of moisture, in some cases sensibly, but in general insensibly. A branch which, after being gathered, has had its wound stopt with wax, will speedily wither in a dry atmosphere; but it may be made to recover by removing it to a damp situation. Hence, in moist weather the difficulty of making hay; and every one has observed the effects of a hot day in causing plants to droop, and of a moist one in causing them to flourish. The effect of *light* upon leaves, is also worthy of notice. It is understood to be the cause of their green colour. Light, it is singular also, while it benefits the *upper*, injures the *under side* of leaves; and none can have attended to fruit trees without remarking, that they invariably turn, not only their leaves, but their branches toward the light. If leaves are disturbed, they will turn again to their former position; and quicker, too, in proportion to the intensity of the light. Not only various flowers may be observed following the course of the sun, but a field of clover in the same way proves the influence of light upon it.

McCulloch's Collection.

THE FALL OF THE LEAF.

See the leaves around us falling,
Dry and withered to the ground;
Thus to thoughtless mortals calling,
In a sad and solemn sound:

"Sons of Adam! (once in Eden
Blighted when like us ye fell)
Hear the lecture we are reading,—
'Tis, alas! the truth we tell.

"Virgins! much, too much presuming
On your boasted white and red;
View us, late in beauty blooming,
Number'd now among the dead!

"Griping misers! nightly waking,
See the end of all your care;
Fled on wings of our own making,
We have left our owners bare.

"Sons of honour! fed on praises,
Fluttering high in fancied worth;
Lo! the fickle air that raises,
Brings us down to parent earth.

"Youths! though yet no losses grieve you,
Gay in health and manly grace,

Let not cloudless skies deceive you;
Summer gives to Autumn place.

"Venerable sires! grown hoary,
Hither turn the observing eye:
Think amid your falling glory,
Autumn tells a Winter nigh.

"Yearly in our course returning,
Messengers of shortest stay;
Thus we preach the truth concerning,
'Heaven and Earth must pass away.'

"On the tree of Life Eternal,
Man, let all thy hopes be staid;
Which alone, for ever vernal,
Bears a leaf that cannot fade."

Horne.

ON THE ADAPTATION OF PLANTS TO THEIR RESPECTIVE COUNTRIES.

"A hundred thousand species of plants upon the surface of the earth!" you exclaim. Yes; and what is more surprising still, every one of these species has its *native country*—some particular region, a peculiar spot, on the surface of the globe, to which in its construction and formation, it is peculiarly adapted. Some are found to spring up into luxuriance beneath the scorching rays of a tropical sun—some are constituted to *vegetate* beneath the snow, and to withstand the severity of a polar winter—some are made to deck the valley with their variegated beauties, and some are formed "to blush unseen, and give their sweetness to the desert air," amid Alpine solitudes; but there is not one of these plants which has not its particular place assigned to it. It would be equally vain to attempt to make some of these *vegetable* forms change their places (without a *corresponding* change of temperature) with impunity, as it would be to make the experiment of removing the finny inhabitants of the ocean, from their native element, in order to make them harmonize and live in comfort among the feathery tenants of the grove. The wisdom and goodness of the Deity are indeed no less manifested in the *geographical* distribution, than in the curious process observed in the *vegetation*, the wonderful structure, and other striking peculiarities of plants. We have not room to multiply instances. But where, it may be asked, could the dense woods, which constitute the Brazilian forest, be more appropriately situated? Where could the delightful vistas, and pleasant walks, and refreshing arbours of the many-trunked *Banian* tree be better placed? Where could that numerous host of *natural umbrellas*, the family of the palms, which overshadow with their luxuriant and projecting foliage, almost every island, rock, and sandbank, between the tropics, display their cooling shades with better effect? Where, in short, could that wonderful exuberance of the earth's beauty, the bread-fruit tree, by which, in the words of Captain Cook, "If a man plant but ten trees in his whole life time (and that he may do in an hour), he will as completely fulfil his duty to his own, and to future generations, as the natives of our temperate climates can do by ploughing in the winter's cold, and reaping in the summer's heat, as often as these seasons return;" where, I say, can this exuberance be more beneficially manifested than in those regions, where "the same glowing beams of the sun that raise the plant into a shrub, and the shrub into a tree," render the gloom of the forest, and the intervening screen of the overhanging foliage so desirable—where the least exertion becomes oppressive, and coolness and ease may be said to constitute the principal wants of the inhabitants? And where, it may be further inquired, could those immense fields upon which are raised the various crops of grain, be better made to expand their extensive surface, and lay open their treasures to the influence of the sun, than in those temperate regions of the globe, where instead of being hurtful, a moderate degree of labour is conducive to health, and the agricultural labourer goes forth to his work in the morning, and returns in the evening, rather invigorated than exhausted by the ordinary occupations of the day? If we extend our views much farther to the north, we may in vain look for the spontaneous luxuriance of the torrid zone, or the golden-coloured fields of the intervening climates; but there we shall find, what is at once more suitable to the climate and the wants of its inhabitants, a plentiful supply of the Rein-Deer lichen, which being formed to vegetate beneath the snow, is there found out in requisite abundance, by that useful creature whose name it bears, and which is of itself a treasure to the inhabitants of those regions. The esculent properties of *Iceland moss* are now beginning to be better understood; and, on what part of the habitable world could this singularly nutricious vegetable have been more *judiciously* and *mercifully* made to abound, than in that island of wonderful contrasts, where the variable climate is often so unfavourable to vegetation of a larger growth, and the hopes of the husbandmen are so repeatedly disappointed by unwelcome visitants in the form of icy particles floating in the air? The *Pitcher-plant* of the eastern, and the *Milk* or *Cow-tree* of the western world, may each of them be reckoned among the most *wonderful contrivances* in the vegetable kingdom, and be justly regarded as evidences of the wisdom and goodness of that Being, who knows so well how to proportion the acts of His bounty to the necessities and wants of his creatures. The singular appendages which form the extremities of the *Pitcher-plant* are so many urns, containing a clear, wholesome, and well-tasted water. In the morning the lid is closed, but it opens during the day, when a portion of the water evaporates: this, however, is replenished in the night; and each morning the vessel is full, and the lid shut. As the plant grows in sultry climates, and is found in the island of Java, in the most stony and arid situations, how welcome and exhilarating must the sight of it often be to the weary traveller! and, from the marks of teeth upon the vessel, it has been said, that "it is evident that beasts often supply their wants at the same plenteous source." The *Milk* or *Cow-tree*, so called on account of the resemblance its singular juice bears to the milk of animals, in place of which Mr. Humbolt has seen it used for many domestic purposes, is thus described by that enterprising traveller:—"I confess that among the great number of curious phenomena which I have observed in the course of my travels, there are few which have made a stronger impression on my mind than the *Cow-tree*. On the barren declivities of a rock grows a tree whose leaves are dry and coriaceous (*that is skinny*); its thick woody roots scarcely enter the rock; for several months in the year rain scarcely waters its fan-shaped leaves; the branches appear dry and dead; but when an incision is made in the trunks, a sweet and nutricious milk flows from it. It is at the rising of the sun that the vegetable liquid runs most abundantly,—then the natives and negroes are seen to come from all parts, provided with vessels to receive the milk, which becomes yellow, and thickens at the surface. Some empty their vessels under the same tree; others carry them home to their children. It is like a shepherd distributing to his family the milk of his flock. If those who possess these precious trees near their habitations, drink with so much pleasure their beneficent juice, with what delight will the traveller, who penetrates these mountains, appease with it his hunger and his thirst? They are accordingly often seen along the roads full of incisions made by the traveller, "who seeks them with anxiety."—The few instances here recorded, may serve as general specimens of the wise ordination, universally to be observed if duly attended to, in the *geographical* arrangement and distribution of vegetables.

Popular Philosophy.

DESCRIPTION OF THE BANIAN TREE.

The Banian Tree is noticed in such a manner in the preceding lesson, that you will be glad to know more particularly about it. It is an object worthy of a particular description, from the vast size it attains, and from the singularity of its growth. This tree, which is one ot the most beautiful and curious productions in nature, is a species of the *fig tree;* and as its native country is the East Indies, it is often called the *Indian fig*. Each tree is in itself a grove; and some of them are of an amazing extent, more resembling a forest than one tree. Every branch from the main body throws down shoots which at length reach the ground and take root. At first these shoots are only small tender fibres, hanging several yards from the ground; but they grow continually thicker as they gradually descend, till they reach the surface, and there striking in, they grow to large trunks—become parent trees, shooting out in the same way new branches. This remarkable tree has long been known and admired. Strabo, an ancient writer, describes it, and mentions particularly, that after the branches have extended about 12 feet straight out from the main trunk, they shoot down, as just described, and there root themselves, and thus they propagate onward, till the whole becomes like a tent supported by many columns. A Banian, with many trunks, forms the most beautiful walks and cool recesses that can well be imagined. One, growing about twenty miles to the westward of Panta, in Bengal, is mentioned as extending over a diameter of 370 feet, and requiring 920 feet to surround the 50 or 60 stems by which the tree is supported, but many have been seen immensely larger. Pliny, a Roman naturalist, also describes this tree with accuracy, as is shown by many modern travellers, and the celebrated poet, Milton, has almost literally rendered the description given by the ancient Roman, in the following beautiful passage:—

"Branching so broad along, that in the ground
The bending twigs take root; and daughters grow
About the mother tree; a pillared shade,
High over-arched, with echoing walks between.
There oft the Indian herdsman, shunning heat,
Shelters in cool; and tends his pasturing herds
At loop-holes cut through thickest shade."

The leaves of this tree are large, soft, and of a lively green; the fruit is small, not exceeding in size a hazel-nut—when ripe, it is of a bright scarlet, affording agreeable food to monkeys, squirrels, and birds of various kinds, which dwell among the branches.

The Hindoos are great admirers of this tree; they consider its long duration (for, unlike most other vegetable productions, it seems exempted from decay,) and its grateful shadow, as emblems of the Deity, and almost pay it Divine honours.

They place their images under it, and there perform a morning and evening sacrifice.

"On the banks of the river Narbuddy, in the Province of Guzzerat, is a Banian distinguished by the name of Cubbeer Burr, in honour of a famous Hindoo saint. The large trunks of this single tree amount to *three hundred and fifty;* and the smaller ones exceed *three thousand.* The Indian armies generally encamp under it; and at stated seasons solemn Hindoo festivals are there celebrated, to which thousands of votaries repair from every part of the Mogul empire. It is said that seven thousand persons find ample room to repose under its shade."

Compiled.

ADAPTATION OF ANIMALS TO THEIR RESPECTIVE CONDITIONS.

Although the variety of quadrupeds is very great, they all seem well adapted to the stations in which they are placed. There is scarcely one of them, how rudely shaped soever, that is not formed to enjoy a happiness suited to its nature. We may suppose the Sloth, that takes up months in climbing a single tree; or the Mole, whose eyes are too small for distinct vision, are wretched and helpless creatures; but it is probable, that their life with respect to themselves, is a life of luxury. The most pleasing food is easily obtained, and as they are abridged in one pleasure, it may be doubled in those which remain. The heads of quadrupeds, though differing from each other, are each adapted to their way of living. In some it is sharp, the better to fit the animal for turning up the earth, in which its food lies. In some it is long, in order to give a greater room for the nerves of smelling, as in Dogs, who are to hunt and find out their prey by the scent. In others it is short and thick, as in the Lion, to increase the strength of the jaw, and to fit it the better for combat. In quadrupeds that feed upon grass, they are enabled to hold down their heads to the ground, by a strong tendinous ligament, that runs from the head to the middle of the back. This serves to raise the head, although it has been held to the ground for several hours, without any labour, or any assistance from the muscles of the neck. The teeth of all animals are admirably fitted to the nature of their food. Those of such as live upon flesh, differ in every respect from such as live upon vegetables. Their legs are not less fitted than their teeth to their respective wants or enjoyments. In some they are made for strength only, and to support a vast unwieldy frame, without much flexibility, or beautiful proportion. Thus the legs of the Elephant, the Rhinoceros, and the Sea-horse, resemble pillars. Were they made smaller, they would be unfit to support the body; were they endowed with greater flexibility or swiftness, it would be useless, as they do not pursue other animals for food, and conscious of their own superior strength there are none that they need avoid. Deers, Hares, and other creatures that are to find safety only in flight, have their legs made entirely for speed; they are slender and nervous. Were it not for this advantage, every carniverous animal would soon make them a prey, and their races would be entirely extinguished. The feet of some that live upon fish are made for swimming. The toes of those animals are joined together with membranes, being web-footed like a goose or duck, by which they swim with great rapidity. The stomach is generally proportioned to the quality of the animal's food, or the ease with which it is obtained. In those that live upon flesh and such nourishing substances, it is small, affording such juices as are best adapted to digest its contents. On the contrary, such animals as feed entirely upon vegetables, have the stomach very large. Those who chew the cud have no less than four stomachs, all which serve as so many laboratories to prepare and turn their coarse food into proper nourishment. In Afrca, where the plants afford greater nourishment than in our temperate climate, several animals that with us have four stomachs, have there but two.

In some of the lessons which follow, you will find some more information about the way in which animals are thus so curiously fitted by the Creator for filling up their respective stations.

Abridged from Goldsmith.

THE CLOTHING OF ANIMALS.

There is another very remarkable circumstance regarding the fitting of the various animals to the situation in which they are placed by their all-wise Creator—I mean their clothing, which is completely adapted both to the climate they inhabit and to the different seasons of the year.

As the cold season draws on, the covering of many animals assumes a different colour. This curious and wonderful change very rarely happens in temperate climates. It is in the extremely cold *arctic* regions that this interesting alteration is most fully displayed. The object of the singular provision is warmth; and the principles upon which it is attained, are simply these:—all persons have felt that dark coloured clothes, especially such as are quite black, heat the body in summer much sooner than white ones; and hence the prevalence of light-coloured garments in the hot season. But the contrary is the case during winter;—black clothes are the most comfortless garments we can wear. When black substances are placed in a temperature *greater* than their own, they absorb heat much more readily than a white substance; but if after a black and white are heated to an equal degree, they are moved to a temperature *lower* than their own, the *black* body will part with its heat, and be cold much sooner than the *white*. White skins are therefore better fitted for keeping the body of an animal from cold, than those of any other colour; they shut in the heat when a darker one would have let it out. Accordingly we find this beautiful law brought to add to the comfort of the fowls and beasts of the arctic circle, at a time, when, without it they would perish.

Guide to Knowledge

Besides the curious fact noticed in the preceding lesson about the colour of the covering of some animals, you must observe, that in all cold countries, such as Lapland, Kamschatka, and the most northerly parts of Canada, they are clothed with thick and warm furs; but in tropical countries they are almost naked. The musk-ox, a native of northern latitudes, is provided in winter with a thick and fine wool, or fur, which grows at the root of the long hair, and shelters him from the intense cold to which he is exposed in that season. But as the summer season advances, the wool loosens from the skin, and by the animal's frequent rolling himself on the ground, it works out to the end of the hair, and in due time drops off, leaving little for summer clothing except long hair. As the warm weather is of short duration, where he lives, the new fleece begins to appear almost as soon as the old one drops off; so that he is again provided with a winter dress before the cold becomes intense. Thus the clothing is suited to the season. The Elephant again, is a native of hot climates, and he goes naked. Rein-deer abound in Lapland and in the vicinity of Hudson's Bay, and they have a coat of strong dense hair. The white Bear is found on the coast of Greenland, and his shaggy covering and its colour, are finely suited to that latitude. In a word, if we pass from the Equator to Spitzbergen, and Nova Zembla, we shall find in all the intermediate degrees, that the clothing of quadrupeds is suited to their climate, and accommodates itself to the season of the year. Hence all fur is *thickened* at the approach of winter, and that accordingly is the season when those engaged in the fur trade endeavour to obtain skins.

Man is the only unclothed animal in all countries; and he is the only creature qualified to provide clothing for himself, and to accommodate that clothing to every climate, and to all the varieties of the seasons. This is one of the properties which renders him an animal of all climates and of all seasons. Had he been born with a fleece upon his back, although he might have been comforted by its warmth in cold climates, it would have oppressed him by its weight and heat in the warmer regions. In this, as in every other respect, his condition is suited to his nature, as a being whose improvement and happiness are promoted by labour of body, and exercise of mind.

In the covering of Birds we still find benevolent contrivances suited to the circumstances, and providing for the comfort of the animal. Its lightness, its smoothness, and warmth are each so appropriate, as to be obvious to the most ordinary observer. Feathers are bad conductors of heat, and hence permit the heat of the animal to pass off *very slowly*. They are so inserted into the skin as naturally to lie backwards from the head, and to lap over each other, like shingles on a roof allowing the rain to run off. When the head of the bird is turned towards the wind, the feathers are not discomposed by the most violent storm. And thus, besides the beautiful variety of colours, they constitute a garment for the body, so beautiful, and so fitted to the life the animal is to lead, as, if we had never seen it, we should, I think, have had no conception of anything equally perfect. There is on the back of birds, at the insertion of the tail, a large gland, which secretes an oily substance; and when the feathers are too dry, or any way disordered, the bird squeezes out the oil with its beak, and dresses them with it. Thus the admission of water is prevented; and the bird, by means of its feathers, is sheltered from cold and rain. Water fowls have accordingly the most abundant supply of oil, and have also their breasts covered with warm and soft clothing suited to their circumstances. We cannot seriously attend to the clothing of animals, without recognizing in it the hand of a wise and beneficent *First Cause.*

Altered from Fergus' Nat. Theol.

THE USES OF ANIMALS.

Quadrupeds.—The uses of Quadrupeds are so various that we must content ourselves with naming only a few of them. Of what great utility for the prosperity of agriculture, travelling, industry, and commerce, is that docile and tractable animal the horse! In what a variety of ways do the ox and the sheep administer to our wants! and happily for the world, these creatures are inhabitants of all countries, from the polar circle to the equator. Goats, in many of the mountainous parts of Europe, constitute the wealth of the inhabitants; they lie upon their skins, convert their milk into cheese and butter, and feed upon their flesh. The Rein-deer, to the inhabitants of the icy regions, supplies the place of the horse, the cow, the sheep, and the goat. The camel is to the Arabian, what the rein-deer is to the Laplander. The flesh of the elk is palatable and nutritious, and of his skin the Indians make snow shoes and canoes. The elephant, in warm countries, is useful as a beast of burden, and draws as much as six horses; wild male elephants are also frequently hunted and killed on account of their tusks, which constitute the ivory of commerce. What an unwearied pattern of unremitting exertion and fidelity is that invaluable animal the shepherd's dog! what humane and excellent life preservers are the Newfoundland species! and what sagacious guides, and safe conductors, are that useful breed trained in the Alpine solitudes, to carry provisions to the bewildered traveller, and lead his steps to the hospitable convent! To what a number of depredations would our substance be exposed, were it not for that convenient and agile animal the cat! The ichneumon is to the Egyptians, in several respects, what the cat is to us. Animals of the weasel kind furnish us with a number of rich and valuable furs; the civet, the genet, and the musk, with a supply of perfumes; the beautiful skin of the tiger decorates the seats of justice of the mandarins of the East; the flesh of the white bear is highly prized by the Greenlanders; that of the leopard is much relished by the African; and the lion, even the lion, the living tomb of so many creatures, is at last frequently eaten by the Negroes.

Birds.—The uses of the poultry kind, especially of such as are domesticated, are too obvious to be enumerated; it may however be remarked, that the common hen, if well supplied with food and water, is said to lay sometimes 200 eggs in a year; and the fecundity of the pigeon, in its domestic state, is so great, that from a single pair nearly fifteen thousand may be produced in four years. It is in a great measure for its singular plumage that man has been tempted to follow the ostrich in its desert retreat; but some of the African tribes are also very fond of its flesh, and its strength and swiftness seem to render it very fit for the purposes of travelling and carrying burdens. If, in the feathery tribes, some appear to be formed to please us with the beauty of their plumage, as the goldfinch and the humming bird; others, as the thrush, the robin and the canary, delight us with the melody of their song. The swallow, as if sensible of the undisturbed possession she has been allowed to take of our windows and roofs during the time of her necessities, catches upon the wing a multitude of flies, gnats, and beetles, and thus frees us from a number of troublesome vermin before she bids us farewell. Many birds are of infinitely more use than we are able to discover, by the destruction of grubs, worms, and eggs of vermin. In many warm countries the vulture is of singular use—numerous flocks of them are always hovering in the neighbourhood of Grand Cairo; and for the services the inhabitants experience, by these animals devouring the carrion and filth of that great city, which, in such a sultry climate, would otherwise soon putrify and corrupt the air, they are not permitted to be destroyed. The ossifrage of the woods of Syria and Egypt in like manner feeds on the dead carcases of other animals.

Insects.—From the number of animals in the different elements and regions of existence, which prey upon insects, we are almost led to infer, that the principal object which the Creator had in view in forming them, was the subsistence of the larger orders of creatures; but the following specimens seem to shew, that some of these also contribute in no small degree, to the service of man. By the labours and exertions of the bee, we are provided with stores of honey and wax. The seemingly contemptible little silk-worm presents us, in its passage from the caterpillar to the sleeping state, with materials for constituting our most costly raiment. The cantharides, or Spanish flies, are of incalculable importance as the basis of blistering plaster, and also as an internal remedy in several diseases; and the cochineal furnishes a rich and beautiful dye.

Reptiles.—It has already been hinted that some animals of prey are of the greatest service, by devouring those substances, which, if left to rot unburied, would corrupt the atmosphere. Amongst animals of this description, we may undoubtedly reckon the race of serpents; and whether we consider the fitness of their bodies for entering the dens, caves, and holes of the earth, or their voracious appetite for this sort of food, in common with reptiles of an inferior order, we must certainly allow, that they are wonderfully adapted for this purpose. This, then, is one very important use which they serve; besides helping to rid the earth of a vast number of the smaller obnoxious vermin, they find their way with the greatest ease into the most secret recesses of putrefaction, and destroy those noisome carcases, to which the other large animals of similar tastes could not, by the peculiar structure of their bodies, have had access. The use of the frog and toad, so commonly abused by school boys, is also very great, and especially in the garden, preserve many vegetables which would be speedily ruined by the worms and insects upon which they subsist.

Fishes.—Some of the tribes of fishes may serve the same purpose in water, that the carrion-devourers do on the land. But it is chiefly as an article of food that the tenants of the waters are to be prized; and it is matter of thankfulness that the benefits which they impart are most extensively diffused. While our lakes, rivers, and streams abound with these living creatures, the ocean conveys them in myraids to the ends of the earth, and presents the bounties of an indulgent parent to his numerous children, however scattered among the isles of the sea. And while some of the larger and rarer kinds are greatly prized, and esteemed luxuries by the *great*, the poor have reason to praise the Almighty for an abundant supply of cheap, wholesome, and nutricious food, in those prodigious shoals of the smaller tribes which visit so many coasts. Even the great Greenland whale, which abounds in such numbers in the northern ocean, is said to furnish the inhabitants of those countries which border on its haunts, with a delicious luxury in the article of food. This fish, however, is better known on account of its importance in furnishing oil and whale-bone; every whale yielding on an average, from sixty to one hundred barrels of oil; which, with the whale-bone—a substance taken from the upper jaw—renders these creatures very valuable in a commercial point of view. The skins of sharks and dog-fish are converted into shagreen. From a species of the sturgeon are supplied isinglass, and also a kind of food called caviar, which is in great request in Russia.

Shell-fish furnish so much of the food to the larger orders of the finny tribe, that, as in the case of insects, it would almost appear that they were called into existence for that purpose. But many of them also contribute to the subsistence, comfort, and luxury of the human race. The hawk's-bill turtle is valued on account of its shell; from which beautiful snuff-boxes and other trinkets are formed. The green turtle as a wholesome and highly nutricious food, has become such a valuable article in commerce, that the English vessels trading to the West Indies, are now generally fitted up with conveniencies for importing them alive. The oyster is much prized for the delicacy of its flavour; in one species of it is also found that beautiful substance called pearl. The pearls are searched for by divers, who sometimes descend from fifty to sixty feet, each bringing up a net full of oysters. The pearl is most commonly attached to the inside of the shell, but is most perfect when found in the animal itself.

Book of Nature.

THE CEDAR OF LEBANON.

The Cedar of Lebanon, so often mentioned with admiration by the sacred writers, differs greatly from the Cedar in this country. It is a native of a very different kind of soil, being found in Syria on the tops of the mountains,—it also attains a stature and a thickness which the American cedars never reach. They resemble each other, however, in various other respects, such as the manner in which the branches grow, in the form of the leaf, and the seed they bear.

The cedar of Lebanon, is a large majestic tree, rising to the height of sometimes a hundred and twenty feet, and some of them are from thirty-five to forty feet in girth. It is a beautiful evergreen, with very small leaves, very like in this respect to the common cedar of our swamps. It distils a kind of gum to which various important qualities are attributed. It derives its grandeur of appearance from its peculiar way of growth, as well as from its great height and bulk. Its branches extend widely, and incline toward the earth; they begin about ten or twelve feet from the ground and in parallel rows round the tree, but lessening gradually from the bottom toward the top, so that the tree is in appearance similar to a cane.

Madame de Genlis, a warm admirer of this truly magnificent tree, says,—"It is neither *travellers* nor *naturalists*, who would have named the *Oak* the king of trees. The *Rose* will be in all countries the *Queen of Flowers;* but among trees the regal honour belongs to the ancient and majestic Cedar."

Anciently it was indeed held in the highest estimation among trees. The great and wise Solomon speaks of it in his writings in most rapturous terms of commendation; and in the building of his famous and gorgeous *Temple,* he made so much use of this wood, that he almost stript Mount Lebanon of its towering and wide-spreading Cedars.

We may form some idea of the extent to which he used this wood in building the Temple, from the fact that that vast structure was almost entirely lined with it; and that to supply the necessary quantity of this precious wood, no fewer than eighty thousand *men* were employed solely in felling Cedars, and conveying them to Jerusalem. When in the prime of its living beauty, this tree as already noticed, has a grandeur of appearance which would alone be sufficient to account for the partiality which Solomon shewed both to the living tree as a natural object, and to its timber as a material for building. But besides this, there was yet another reason for his high estimation of his favourite tree. The wood of it, like its American relative, emits a fragrance which protects it against ravages which various kinds of insects commit upon nearly all other descriptions of wood. The ancients had a most exaggerated notion of its durableness and incorruptibility;—hence the *sap* of it was used by them in embalming the bodies of the dead, and was also rubbed on the most precious of their manuscripts to preserve them. It is evident, from the writings of Solomon, that if this tree was not originally a native only of Lebanon, it was at least much more abundant and more beautiful there than in any other country in the world. But such are the revolutions which take place in all earthly things, that in the present age, it might far more justly be spoken of as the Cedar of England or of France—for it is completely naturalized in both these countries, and each of them possesses many magnificent specimens of it;—while in Lebanon, the ancient land of its glory and its abundance, it has almost ceased to exist! Some few trees only remain, to remind the traveller of their former glory, and teach mankind the mutability of all sublunary things. Toward the close of the seventeenth century, a traveller named Maundrell, visited Libanus, and reported that only sixteen ancient trees were standing—and this on the very spot where, in the days of Solomon, there was an immense forest of these beautiful trees! When the Cedar was first introduced into England is uncertain; but it is known, that several of them are upwards of 200 years old. One which was blown down in a tempest in 1779, measured upwards of sixteen feet in girth at seven feet from the ground, and its branches extended out above one hundred feet, and the height of the tree was about seventy feet.

The Cedar of Lebanon is used in the poetical style of the prophets to denote kings, princes, and potentates of the highest rank. Thus the prophet Isaiah, in denouncing the judgment of God upon proud and arrogant men, says, that it "shall be upon all the cedars of Lebanon, that are high and lifted up." And the spiritual prosperity of the good man is compared by David to the same noble tree. "The righteous," he says, "shall grow as the cedar in Lebanon." Compiled

CLOTHING FROM ANIMALS.

In the hide of an animal, the hair and the skin are two entirely distinct things, and must be considered separately as materials for clothing. The hair of quadrupeds differs much in fineness. It is chiefly the smaller species which are provided with soft, thick, glossy coverings that bear the name of *fur*, and they are found in the greatest perfection where they are most wanted, that is, in the coldest countries. They form, indeed, the riches of those dreary wastes which produce nothing else for human use. The animals most esteemed for their fur are of the weasel kind; the glutton, the marten, the sable, and the ermine.—That of the grey squirrel is also very valuable. Fur is used either growing to the skin or separated from it. In its detached state, it is employed in making a stuff called *felt*.—It is in the manufacture of hats that felting is chiefly practised; and the fur used for this purpose is that of the beaver, the rabbit, and the hare. Wool, however, is often employed as a substitute in making a coarse article.

Wool differs from common hair, in being more soft and supple, and more disposed to curl. These properties it owes to a degree of unctuosity or greasiness, which is with difficulty separated from it. The whole wool as taken from the animal's body, is called a *fleece*. The first operation this undergoes is that of picking and sorting into the different kinds of wool of which it is composed. It is then taken to the wool-comber, who, by means of iron-spiked combs, usually connected with machinery driven by water, draws out the fibres, smooths and straightens them, separates the refuse, and brings it into a state fit for spinning. The spinner forms the wool into threads, which are more or less twisted, according to the manufacture for which they are designed,—the more twisted forming *worsted*, the looser *yarn*.

The kinds of stuffs made wholly or partly of wool are extremely various; and Great Britain produces more of them, and in general of better quality, than any other country. The threads of English broad-cloth are so concealed by a fine down raised on the surface of it, called a *nap*, and curiously smoothed and glossed, that it looks more like a rich texture of nature's forming than the work of the weaver. Wool, in common with other animal substances, takes a dye better than any vegetable matters. Our cloths are therefore made of every hue that can be desired; but in order to fit them for the dyer, they are first freed from all greasiness and foulness by the operation of *fulling*, in which the cloths are beaten by heavy mallets as they lie in water, with which certain cleansing substances have been mixed. And fresh water being continually supplied while the beating is going on, all the foulness is at length carried off. The operation of fulling has the farther effect of thickening the cloth and rendering it more firm and compact, by mixing the threads with each other, something in the manner of a felt. The cloths of inferior fineness are mostly called narrow cloths. With the single material of wool, art has been able much better to suit the different wants of man in his clothing, than can be done by all the productions of nature. What could be so comfortable for our beds as blankets? What so warm, and at the same time so light for pained and palsied limbs, as flannel? The several kinds of the worsted manufacture are excellent for that elasticity which makes them sit close to a part without impeding its motions. This quality is particularly observable in stockings made of worsted. Even the thinnest of the woollen fabrics possess a considerable degree of warmth, as appears in shawls. The real shawls are made of the fine wool of Thibet, in the eastern part of Asia; but they have been very well imitated by the product of some English looms. A very different article made of wool, yet equally appropriated to luxury, is carpeting. Upon the whole, Dyer's praise of wool seems to have a just foundation:—

> "Still shall o'er all prevail the shepherd's stores,
> For numerous uses known: none yields such warmth,
> Such beauteous hues receive, so long endure;
> So pliant to the loom, so various,—none."

Silk.—Men must have been far advanced in the observation of nature before they found out a material for clothing in the labours of a caterpillar. China appears to have been the first country to make use of the web spun by the *silk-worm.* This creature, which, in its perfect state, is a kind of moth, is hatched from the egg, in the form of a caterpillar, and passes from that state successively to those of a chrysalis, and of a winged insect. While a caterpillar it eats voraciously, its proper and favourite food being the leaves of the different species of mulberry. By this diet it is not only nourished, but enabled to lay up, in receptacles within its body formed for the purpose, a kind of transparent glue, which has the property of hardening as soon as it comes into the air. When arrived at full maturity, it spins itself a web out of this gluey matter, within which it is to lie safe and concealed during its transformation into the hopeless and motionless state of a chrysalis. The silk-worm's web is an oval ball, called a cocoon, of a hue varying from light straw colour to full yellow, and consisting of a single thread wound round and round, so as to make a close and impenetrable covering. The thread is so very fine, that when unravelled it has been measured to 700 or 1000 feet, all rolled within the compass of a pigeon's egg. In a state of nature, the silk-worm makes its cocoon upon the mulberry-tree itself, when it shines like a golden fruit among the leaves; and in the southern parts of China, and other warm countries of the East, it is still suffered to do so, the cocoons being gathered from the trees without farther trouble. But, in colder climates, the inclemency of the weather in spring, when the worms are hatched, will not permit the rearing of them in the open air. They are kept therefore, in warm but airy rooms, constructed for the purpose; and are regularly fed with mulberry-leaves, till the period of their full growth. As this tree is one of the latest in leafing, silk-worms cannot advantageously be reared in cold climates. During their growth, they several times shed their skin, and many die under this operation. At length they become so full of the silky matter, that it gives them a yellowish tinge, and they cease to eat. Twigs are then presented to them on little stages of wicker-work, on which they immediately begin to form their webs. When the cocoons are finished, a small number, reserved for breeding, are suffered to eat their way out, in their butterfly state; the rest are killed in the chrysalis state, by exposing the cocoons to the heat of an oven.

The next business is to wind off the silk. After separating a downy matter from the outside of the cocoon, called floss, they are thrown into warm water; and the ends of the thread being found, several are joined together, and wound in a single one upon a reel. This is the silk in its natural state, called *raw silk*. It next undergoes some operations to cleanse and render it more supple; after which it is made into what is called *organzine* or *thrown silk*, being twisted into threads of such different degrees of fineness as are wanted in the different manufactures. This is done in the large way by mills of curious construction, which turn at once a vast number of spindles, and perform at the same time the process of unwinding, twisting, reeling, &c. All the branches of the silk manufacture have long flourished in Italy, from which was obtained the model of the machines used in England. (The silk manufacture has been carried on to some extent of late years in the United States.)

The excellence of silk, as a material of clothing, consists in its strength, lightness, lustre, and readiness in taking dyes. As it can never be produced in great abundance, it must always be a dear article of clothing. The fabrics of silk are very numerous—in thickness they vary, from the finest gauze to velvet, the pile of which renders it as close and warm as fur. Some of the most beautiful of the silk manufactures are the glossy satin; the elegant damask, of which the flowers are of the same hue with the piece, and only show themselves from the difference of shade; the rich brocade, in which flowers of natural colours, or of gold and silver thread, are interwoven; and the infinitely varied ribands. It is also a common material for stockings, gloves, buttons, strings, &c. and its durability almost compensates for its dearness. Much is used for the purpose of sewing, no other thread approaching it in strength. Silk, in short, bears the same superiority among clothing materials that gold does among metals; it gives an appearance of richness wherever it is employed, and confers a real value. Even the refuse of silk is carefully collected, and serves for useful purposes. The down about the cocoons, and the waste separated in the operations raw silk undergoes, are spun with coarser thread, of which very serviceable stockings are made; and the inferior part of the cocoon is reckoned to be the best material for making artificial flowers.

Aikin.

INSTINCT OF ANIMALS.

The inferior animals are either altogether incapable of reasoning, or possess the faculty in a very low degree; and, accordingly, if we discover any improvement among them, it is in a few individuals only, under the special instruction of man. Man, on the contrary, reasons, plans, and uses various means for the accomplishment of his ends; but the inferior animals almost always use the *same means* for the attainment of the *same* ends. Man also improves by practising any kind of work, but the bird builds its nest, and the bee constructs its cell, as perfectly on the first attempt, and without either instruction and experience, as at any future period. They have no need to serve an apprenticeship. Every kind of bird, too, observes a particular plan; and all of the same species work after the same model.—Were it *reason* that guided, then the habitations of animals, their buildings, would be as different as ours. The principle which the inferior animals use in these circumstances is called *instinct ;* and although by means of it many animals perform very wonderful things, yet it is very far inferior to reason in man. It is this principle which leads every animal to defend itself, for instance, by those weapons with which its Creator has provided it. Thus the dog in combating an enemy uses his teeth, while the insect employs its sting. The ox never attempts to bite, nor the dog to push with his head.

This principle also enables animals to know their enemies, and to warn each other of their danger. By a particular sound the hen calls her chickens to food; and they know what it means, and instantly comply with the invitation. By a different cry she warns them of danger, on the approach of a hawk ; and although they never heard the cry before, they hasten to her for concealment and shelter. As all animals have some means of defence and safety, so they have corresponding instincts, which prompt to the proper use of these means. In some of the lessons that follow, you will learn some very interesting facts respecting the instincts of some animals, in building their habitations and changing at certain seasons the place of their abode.

Compiled.

HABITATIONS OF ANIMALS.

Many animals live without any fixed habitation; and the dwelling which others frequent is of the simplest kind.—Some animals have no particular place of residence during winter, as many birds, but prepare a place in spring for bringing forth and rearing their young. Others, as the beaver, have no fixed residence in summer, but provide a comfortable habitation against the severity of winter. In the construction of their houses many animals display much sagacity; and as an example of this, we may select the beaver. This animal is endued with very wonderful instincts. The beavers, when numerous, construct their houses on the margin of ponds, lakes and rivers. They always choose a place where the water is so deep as not to freeze to the bottom. When they build on small streams, where the water is liable to be drained off by a failure in the sources which supply the stream, they provide against the evil by making a dam quite across the river, at a convenient distance from their houses. This shows the foresight and sagacity of an engineer in erecting a fort, or marking out the ground for the site of a city. The shape of the dam varies according to circumstances. If the current of the river be slow, the dam runs almost straight across; but if the current be rapid, the dam is formed with a considerable curve toward the stream, so that the different parts of it support each other like an arch. The materials employed are drift-wood, green willows, birch, and poplars, if they can be gotten; also sand and stone, intermixed in such a manner as contributes much to the strength of the dam, which, when the beavers are allowed to frequent a place undisturbed, by frequent repairs becomes very firm.

The beavers always cut their wood higher up the river than their dam, so that they enjoy the advantage of the stream in conveying it to the place of its destination. On the margin of lakes, where they have always a sufficient depth of water, they construct no dams. Their houses, however, are built of the same materials as the dams; and their dimensions are suited to the number of inhabitants, which seldom exceeds four old, and and six or eight young ones. The great aim of the beaver is to have a dry bed; and their houses—which are but rude structures —have only one door, always opening to the water.

The otter, likewise, discovers much sagacity in forming his habitation. He burrows under ground on the banks of rivers and lakes. He always makes the entrance to his house under water, working upwards towards the surface of the earth, and forming different chambers in his assent, that in case of high floods he may still have a dry retreat. He forms a small air-hole reaching to the surface, and, for the purpose of concealment, this air-hole commonly opens in a bush. Fergus' Nat. Theol.

MIGRATION OF BIRDS.

No subject connected with natural history is more interesting, or more deserving of study and admiration than the periodical migration of the feathered race. This marvellous fact regarding birds has been observed in all ages, and in all ages has alike led the mind up to that Almighty power which, impelling the birds of the air "from zone to zone, guides through the boundless sky their certain flight."

Birds have a *native country*, where they spend their sweetest hours, rearing their young, and gladdening the listening world with their songs. But when the family is reared, both old and young depart from their native land and make a foreign tour. Thus their time is nearly equally divided—one half "at home," and the remainder "abroad." Almost all birds, with the exception of those in whom a long residence in towns has partially changed their natural habits, are, in a greater or less degree, subject to this periodic desire of "seeing the world." The influence which prompts to this movement is sudden and unpremeditated in its operation—generally the birds are all here to-day, and all gone to-morrow. When any of the migratory class are kept in cages, a sudden restlessness is observed to seize them at the season for emigration—they will go to their *evening* roost as usual, and compose themselves in slumber, when—flutter, flutter—they bound from their perches, and beat their narrow boundaries with the most anxious solicitude. This agitation continues several days. The migration of birds is two-fold, northwards and southwards, or in other words, there is a periodical movement of spring and winter visitors. When winter's icy fetters are dissolved, and the grass begins to spring, and the trees to bud, a multitude of birds, whose voices tell of spring, appear, new-sprung as it were, into existence. They have newly arrived from the regions of the south, where, during our frozen winter, they have enjoyed food and warmth; but they are still our birds, for here they build their nests, and rear their young, and return, many at least, year after year, to their old and well-tried haunts. In like manner, when our summer visitors have taken their departure at the approach of winter, those whose native country is in the regions of the arctic circle come southward to spend the winter. The object of this singular movement is in all cases food and suitable advantages in summer for rearing their young.

There is a singular fact connected with the arrival of the spring visitors, not easy to account for; it is this—the males of many classes, perhaps, of all, appear several days, sometimes a week or two, before the females join them, and it would seem as if they came to look out for a fit spot, to which they may invite their expected mates. A very great number of those who visit us in summer are *insectiverous*, that is, live upon insects, such as the *marten* and *whip-poor-will*, and hence their appearance is a sure indication that warmth is at least soon to follow when the insect tribes can be found in plenty. The following particulars respecting these annual emigrants I have no doubt will be interesting to you.

The time of Starting.—This is with so many at *night* that it may be considered as universal. This fact has already been indirectly alluded to. Some of them, although commencing their journey at night, travel in the day time, but the greater part under the protecting shadows of night; while a few use both times according to circumstances. In passing over land they occasionally halt for food, but as they spend little time upon even their most lengthened journey, they rarely sleep till they reach their destination.

Numbers.—They migrate in parties more or less numerous, according to fixed rules peculiar to each species; but the numbers, in every case, are immense. Captain Flinders, in a voyage to Australia, saw a compact stream of *stormy petrels*, which was from 50 to 80 yards deep, and 300 yards or more broad. This stream, for a full hour and a half, continued to pass without interruption, with nearly the swiftness of a pigeon. Now, taking the column at 50 yards deep, by 300 in breadth, and that it moved 30 miles an hour, which is slow flying, and allowing nine cubic inches of space to each bird, the number would amount to 121 millions and a half. The migratory pigeon of the United States (considerable numbers of which visit Canada) flies in still more amazing multitudes.

Swiftness.—Vast speed is necessary to enable birds to cross oceans, without perishing from hunger or fatigue, but they possess the necessary fleetness, as will be seen from the following statement. The *Swift*, it has been computed, flies on the average 500 miles daily, and yet finds time to feed, clean itself, and collect materials for its nest, with apparent leisure.

"In 1830, one hundred and ten pigeons of the carrier kind were brought from Brussels to London, and were let fly on the 19th July, at a quarter before nine in the morning; one reached Antwerp, one hundred and eighty-six miles distance, at eighteen minutes past two, or in five and a half hours, being at the rate of thirty-four miles an hour. Five more reached it within eight minutes after. Thirteen others took two and a half hours more for the journey, or eight hours in the whole. Yet the rate was twenty-three miles an hour."

Figure.—Most birds in their migrations, fly according to a determinate figure, which is connected with their "form, strength, flight, attitude and destination." Quails fly in an irregular cloud; their wings being short, they depend a good deal upon the wind to drive them; and hence their scattered appearance. Some fly in dense columns, and some, as herons, in long straggling lines. The most curious figures, however, are those assumed by the wild-goose. It has been observed that the elevated and marshalled flight of wild-geese seems directed by geometrical instinct—shaped like a wedge, they cut the air with less individual exertion; and it is conjectured that the change of its form, an inverted V, an A, or an L, or a straight line, is occasioned by the leader of the van's quitting his post at the point of the angle, through fatigue, dropping into the rear, and leaving his place to be occupied by another.

In all these things, what wonders are presented to our consideration! Look at a departing swallow—think of his unerring instinct, his untiring wing, and his wonderful courage—ready to cross an ocean, without food, pilot, or experience. Look at him dressing his agile little wing, and conceive if you can, how it is possible that little creature can, in the dark hours of night, steer a never-failing course across seas, or lakes, forests, and mountains. Or look at the Solan-goose, crossing the trackless solitudes of the Northern Ocean in a *right line,* direct to a particular rock, his former residence, and which, perhaps, no eye could see at ten miles distance—can *Great, Wise Man* act in this way? No, indeed; before the mariner's compass was invented, he was afraid in his voyages to lose sight of the land for any length of time; and hence could only move along the coast.

What is the undiscovered cause of the correct movement of the feathered race? We can find it only in that great Creative Being, who, in daily turning the world upon its axis, and guiding a tiny bird upon a lengthened journey, and sometimes over an ocean, equally confounds *our intelligence,* and exalts *His own glory. He* points each species to a land of plenty when winter is about to steal in among them and deprive them of their accustomed food. Under *His* direction the northern water-fowl then pour down upon the southern nations, at the incredible speed of two hundred miles an hour.* The birds of North America may be seen at the approach of winter, passing to Mexico, and the West Indies.—Pretty Birds, welcome, and farewell!

Compiled.

MIGRATION. THE STORK—THE TURTLE-DOVE.

You were told in last lesson, that in all ages the wonders connected with the migration of Birds have been noticed.—The sages of old, as well as the curious and scientific, of the present day, considered the subject worthy of their special attention. Accordingly, this interesting subject is several times alluded to in that best of all books—the Bible; and is represented as illustrating the wisdom, power, and goodness of Him " who satisfies the wants of every living thing." Thus the prophet Jeremiah says, "The *stork* in the heaven knoweth her appointed time; and the *turtle,* and the *crane,* and the *swallow,* observe the time of their coming.'

*Professor Rennie.—Guide to Knowledge.

The Stork belongs to a family of birds, every member of which is readily distinguished by their peculiar forms. They are not web-footed like many birds which frequent similar places. But, although the stork on this account cannot swim, it can nevertheless advance far into the water and secure its prey. For this purpose it has very long legs of a red colour, and long neck and beak. It feeds entirely upon serpents, fishes, frogs, and other aquatic reptiles. Its bill is not long, but jagged, so that its sharp hooks enable it to retain its slippery prey. The nails of its toes are very peculiar, not being clawed like those of other birds, but flat, like the nails of a man. Its colour is white and brown. The gentle and social disposition of this bird, conjoined with its utility, has caused it to be regarded in all ages and countries with peculiar complacency. In ancient Egypt it was held next in esteem to the sacred *Ibis;* and in many parts of Africa, and the East, it is still regarded with reverence.—The stork abounds greatly in Holland during the summer months. In the beginning of April they arrive there in small flocks, where they uniformly find a kind and hospitable reception—returning year after year to the same town, and the same chimneytop, they reoccupy their deserted nest; and the gladness they manifest, in again taking possession of their dwelling, and the "attachment which they testify towards their benevolent hosts, are familiar in the mouths of every one." The stork has also been long noted for its affection to its young, and its infirm parents—and the story is well known of a female, which, during the conflagration at Delft, chose rather to perish with her young than abandon them to their fate. Sir John Hill, an eminent naturalist, sets this character of the bird in a strange and beautiful light.

"The two parents feed and guard each brood; one always remaining with them while the other goes for food. They keep the young ones much longer in the nest than any other bird; and after they have led them out of it by day, they bring them back at night, preserving it as their natural and proper home. When they first take out their young, they practise them to fly; and they lead them to the marshes, and to the hedge-sides, pointing out to them the frogs, and serpents, and lizards, which are their proper food;

and they will seek out toads, which they never eat, and take great pains to distinguish them." At the time of their return, after having visited some warmer climate during winter, this writer states, that "it is not uncommon to see several of the old birds, which are tired and feeble with the long flight, supported at times on the back of the young; and the peasants speak of it as a certainty, that many of these are, when they return home, laid carefully in the old nests, and fed and cherished by the young ones, which they reared with so much care during the spring before."

> The stork's an emblem of true piety;
> Because, when age has seized, and made his wing
> Unfit for flight, the grateful young one takes
> His mother on his back, provides her food,
> Repaying thus her tender care of him,
> Ere he was fit to fly. **Beaumont.**

The stork, you will understand from what has been said, is a bird of passage; and Jeremiah, you were told, says they "know their appointed time." And those who know most about them tell us, that "for about the space of a fortnight before they pass from one country to another, they constantly resort together, from all the adjacent parts, in a certain plain; and there forming themselves once every day into a "douwanne" or council (according to the phrase of those Eastern nations,) are said to determine the exact time of their departure."

> Who bid the stork, Columbus-like explore
> Heavens not his own, and worlds unknown before?
> Who calls the council, states the certain day,
> Who forms the phalanx, and who points the way?
> **Pope.**

The Turtle Dove.—The *Turtle* is only a variety of the Dove, of which there are several families. It is a little smaller than the common pigeon, but the principal difference between this and the other birds of its kind, is in its migratory disposition—the rest of the dove family are all stationary. Aristotle, an ancient Greek writer, notices the fact to which the Prophet Jeremiah alludes, as you have seen in the preceding lesson; he says, "the pigeon and the dove are always present, but the turtle only in summer: that bird is not seen in winter." It is on the same account that Solomon mentions the sound of its voice as one of the indications of spring. "Lo the winter is past, the rain is over and gone, the flowers appear on the earth; the time of the singing of birds is come, and the *voice of the turtle* is heard in our land." It is a bird whose voice makes glad the groves, harmonizing with the soft breathings of spring, and the aspect of reviving nature—a bird which by universal consent has been taken as the emblem of concord, love, and domestic happiness—the theme of poets in every age. The turtle is not insectiverous, nor does it, like the stork, feed upon frogs, lizards, or fish; its food is grain, seeds, and berries, with the tender leaves of plants. The dove tribe are all remarkable for the brilliancy of their plumage, and the splendour of their eyes. The manners of the dove are as engaging as her form is elegant, and her plumage rich and beautiful. The Saviour alludes with striking effect to her amiable temper in that well known direction to his disciples,—"Be ye wise as serpents, and harmless as doves." Wisdom without simplicity, degenerates into cunning—simplicity without wisdom, into silliness; united, the one corrects the excess or supplies the defects of the other, and both become the objects of praise; but separated, neither the wisdom of the serpent, nor the simplicity of the dove, gains in this passage the Saviour's commendation. The character which is compounded of both, makes the nearest approach to the true standard of excellence. Wisdom enables to discern between good and evil, truth and error; the simplicity of the dove renders him who possesses it, inoffensive and sincere, that he may not deceive or injure his neighbour. Whatever else you may learn, endeavour at all times to practise the advice of Paul to the Romans, to be "wise unto that which is *good*, and simple concerning evil."

Compiled.

ON THE SPIDER'S WEB.

What, if we had not witnessed it, would seem more incredible, than that any animal should spin threads, weave those threads into nets more admirable than ever fisher fabricated, suspend them with the nicest judgment in the place most abounding in the wished-for prey, and, there, concealed, watch patiently its approach? In this case as in many others, we neglect actions, in minute animals, which in the larger, would excite our endless admiration. How would people crowd to see a fox that could spin ropes, weave them into an accurately meshed net, and extend this net between two trees for the purpose of entangling a flight of birds? Or should we think we had ever expressed sufficient wonder, at seeing a fish, which obtained its prey by a similar contrivance? Yet there would, in reality, be nothing more marvellous in their procedure, than in those of spiders, which indeed, the minuteness of the agent renders more wonderful. The thread spun by spiders is, in substance, similar to the silk of the silk-worm and other caterpillars, but of a much finer quality. As in them, it proceeds from reservoirs, into which it is secreted in the form of viscid gum. If you examine a spider, you will perceive four or six protuberances or spinners. These are the machinery, through which, by a process more singular than that of rope-spinning, the thread is drawn. Each spinner is furnished with a multitude of tubes inconceivably fine, and consisting of two pieces, the last of which terminates in a point infinitely small. From each of these tubes proceeds a thread inconceivably slender, which immediately after issuing from it, unites with all the other threads into one. Hence from each spinner proceeds a compound thread; and these four threads again unite, and form the thread we are accustomed to see, which the spider uses in forming his web. Thus a spider's thread, even spun by the smallest species, and when so fine as almost imperceptible to our senses, is not, as we supose a single line, but a rope consisting of an immense number of strands. The spider is gifted by her Creator with the power of closing the orifices of the spinner at pleasure, and can thus, in dropping from a height by her line, stop her progress at any point of her descent. The only other instruments used by the spider in weaving, are her feet, with the claws of which she usually guides, or keeps separated into two or more, the line from behind; and in many species, these are admirably adapted for the purpose, two of them being furnished underneath with teeth, like those of a comb, by means of which the threads are kept asunder. But another instrument was wanting. The spider in ascending the line, by which she has dropt herself from an eminence, winds up the superfluous cord into a ball. In performing this the toothed claws would not have been suitable. She is therefore furnished with a third claw, between the other two, and is thus provided for every occasion. The situation in which spiders place their nets are as various as their construction. Some prefer the open air, and suspend them in the midst of shrubs, fixing them in a horizontal, a vertical, or an oblique direction. Others select the corners of windows and of rooms where prey always abounds; while some establish themselves in stables and out-houses, and even cellars, where one would scarcely expect a fly to be caught in a month. The most incurious observer must have remarked the great difference which exists in the construction of spider's webs; those which we most commonly see in houses, are of a woven texture, similar to fine gauze, and are appropriately termed *webs;* while those most frequently met with in the field, are composed of a series of concentric circles, united by lines passing from the centre, the threads being remote from each other. These last are with greater propriety termed *nets;* the insects which form them, proceeding on geometrical principles, may be called *geometricians*, while the former can aspire only to the humble denomination of *weavers.* The *weaving* spider, which is found in houses, having selected some corner for her web, and determined its extent, presses her spinners against one of the walls, and thus fixes as with glue one end of her thread; she then walks along the wall to the opposite side, and there, in like manner, fastens the other end. This thread which is to form the margin or selvedge of the web, and requires strength, she triples or quadruples, by a repetition of the operation just described, and from it she draws other threads in various directions, the openings between which she fills up, by running from one to the other, and connecting them by new threads until the whole has assumed the gauze-like texture which we see. This web when in out houses and bushes, possesses generally a very artificial appendage. Besides the main web, the spider carries up, from its edges and surface, a number of single threads, often to the height of many feet, joining and crossing each other in various directions. Across these lines, which may be compared to the tackling of a ship, flies seem unable to avoid directing their flight. The certain consequence is, that, in striking against these ropes, they become slightly entangled, and in their endeavours to disengage themselves, rarely escape being precipitated into the net spread underneath for their reception, where their doom is inevitable. But the net is still incomplete. It is necessary, that our hunter should conceal her grim visage, from the game for which she lies in wait. She does not, therefore, station herself upon the surface of her net, but in a small silken apartment constructed below it, and completely hidden from view. But thus entirely out of sight, how is she to know when her prey is entrapped? For this difficulty our ingenious weaver has provided; she has taken care to spin several threads from the edge of the net to that of her hole, which at once informs her, by the shaking, of the capture of a fly, and serve as a bridge on which in an instant she can run and secure it. You will readily conceive, that the geometrical spiders, in forming their circular nets, follow a process very different from that just described; and it is in many respects more curious. But as they can be seen in great numbers in the field or garden any summer day, they can be easily examined. Look at them in the morning, when hung over with dew, and you will see more distinctly all the minute parts. You must not infer that the toils of the spiders are, in every part of the world, formed of such fragile materials, as those which we are accustomed to see, or that they are every where contented with small insects for their food. The spiders of Bermuda are remarkably large, and spin webs between trees seven or eight fathoms distant, which are strong enough to ensnare a bird as large as a thrush.

Kirby and Spence—Abridged.

THE TIGER.

The Tiger is one of the most beautiful, but, at the same time, one of the most rapacious and destructive, of the whole animal race. It has an insatiable thirst after blood, and, even when satisfied with food, is not satiated with slaughters. Happily for the rest of the animal race, as well as for mankind, this destructive quadruped is not common, nor the species very widely diffused, being confined to the warm climates of the East, especially India and Siam. It generally grows to a larger size than the largest dog, and its form so completely resembles that of a cat, as almost to induce us to consider the latter animal as a tiger in miniature. The most striking difference between the tiger and the other mottled animals of the cat kind, consists in the different marks on the skin. The panther, the leopard, &c., are spotted, but the tiger is ornamented with long streaks quite across its body, instead of spots. The ground colour, on those of the most beautiful kind, is yellow, very deep on the back, but growing lighter towards the belly, where it softens to white, as also on the throat and the inside of the legs. The streaks, which cover the body from the back to the belly, are of the most beautiful black, and the skin altogether is so extremely fine and glossy, that it is much esteemed, and sold at a high price in all the eastern countries, especially China. The tiger is said by some to prefer human flesh to that of any other animal; and it is certain that it does not, like many other beasts of prey, shun the presence of man, and, far from dreading his opposition, frequently seizes him as his victim. These ferocious animals seldom pursue their prey, but lie in ambush, and bound upon it with a surprising elasticity, and from a distance almost incredible. The strength, as well as the agility of this animal, is wonderful; it carries off a deer with the greatest ease, and will even carry off a buffalo. It attacks all kinds of animals, except the elephant and the rhinoceros. Furious combats sometimes happen between the tiger and the lion, in which both occasionally perish. The ferocity of the tiger can never be wholly subdued; for neither gentleness nor restraint makes any alteration in its disposition.

Bingland.

THE BAT.

The Bat is a very singular creature, possessing properties which connect it with both beasts and birds. On this account it has been classed, in systems of natural history, sometimes with the one, and sometimes with the other. More than one naturalist has said, "It is too much a bird to be properly a beast, and too much a beast to be properly a bird." Its nature, however, is now better known, and doubts respecting the *order* to which it belongs no longer exist. The bat is now universally regarded as one of the *animal* tribes, to which the bringing forth its young alive, its hair, its teeth, as well as its general conformation, evidently entitles it. In no particular scarcely does it resemble a bird, except in its power of sustaining itself in the air, which circumstance is not enough to balance the weight of those particulars which have been noticed as placing it among quadrupeds.

The ancients generally gave names to creatures indicative of their nature and habits. The Hebrew name for the bat, accordingly, means "the flier in duskiness," that is, the evening. It was similarly named by the Greeks and Latins.

The structure of the bat is expressly adapted for ærial habits It is, we have just seen, a quadruped with wings; but these wings do not, as in birds, consist of feathers, but of a thin membrane, of great sensibility, stretching to its extremeties, and connecting the bones of the fingers. To increase the extent of surface of the membrane, as well as to give it a pointed, wing-like figure, by which the evolutions of the animal in the air may be more free and rapid, the bones of the fore-arm are lengthened, and those corresponding to the fingers are drawn out, as it were, to a prodigious extent, and perform exactly the same office as the whalebone strips in an umbrella. The thumb, however, is short and free, and armed with a sharp curved hook; and the toes of the hind feet are also short, and unconnected by membranes, each having a hook-like nail. The legs of the bat are thus formed in a very particular manner, and entirely different from any other animal, and were not intended to be the means by which it should chiefly move. It is, however, capable of crawling, or hobbling along (in a singularly awkward manner it must be allowed), on a level surface; but it never chooses such a situation for its resting place—indeed, its position on "all fours" is unnatural. While reposing, the bat clings with the claws of its hind feet to any projection, to the branch of a tree, or to the rafters of a house, and thus suspends itself with the head hanging downwards, and the wings beautifully folded. The bats constitute a numerous family, and spread through every quarter of the globe, and are all nocturnal in their habits—their active state, and their enjoyments, beginning with the going down of the sun—they then sally forth from their lurking-places and launch into the air, where they find the moth on the wing, and other insects, to which they give chase, and are themselves not unfrequently the prey of the mousing owl.

Weekly Visitor.

THE BOA.

The Boa is a tremendous kind of serpent, frequently found in the island of Java, and other parts of the East Indies, as also in Brazil, and some other countries of South America. The boa is among serpents, what the Lion or the Elephant is among quadrupeds. This enormous reptile, which includes several species, all of them terrible from their magnitude and strength, but destitute of venom, is generally thirty feet long, and of a proportionable thickness; its colour is of a dusky white, variously spotted; the scales are round, small, and smooth. These formidable serpents lie in thickets, whence they sally out unawares, and, raising themselves upright, attack man and every other animal without distinction. We have the account of the seizure of a buffalo by one of these enormous reptiles. The serpent had been watching some time near the brink of a pool, in expectation of its prey, when a buffalo was the first victim that presented itself. Having darted upon the animal, it instantly began to wrap round it with its voluminous twistings; and, at every twist, the bones of the buffalo were heard to crack. The poor animal struggled and bellowed; but its terrible foe encircled it too closely to suffer it to get free, till at length all its bones being crushed to pieces, and the whole body reduced to a uniform mass, the serpent untwined its folds in order to swallow it at leisure. To prepare for this, it was seen to lick the body all over, and thus cover it with its mucus, to make it slip down more readily. It then began to swallow the buffalo, and its body dilating itself to receive it, the monstrous serpent took in, at one morsel, a creature three times as thick as itself! These terrible reptiles are sometimes found with the body of a stag in their gullet, and the horns, which they are not able to swallow, sticking out of their mouth.

Bingland.

THE LION.

Of all animals the outward form of the Lion is the most striking—his look is bold and confident, his gait proud, and his voice terrible; and, from his great strength and agility, is usually styled the *king of beasts.* His body is compact, well proportioned, and sizeable—a perfect model of strength joined with agility. It is sufficient but to see him in order to be assured of his superior force. His face is very broad and majestic—his huge eye-brows—his round and fiery eye-balls, which upon the least irritation glow with peculiar lustre—his shaggy mane encircling his bold and awful front, together with the formidable appearance of his teeth, exhibit a picture of terrific grandeur which it is impossible to describe. His tongue is exceedingly rough and prickly, and by licking, will easily take off the skin of a man's hand. The general colour of the lion is a tawny yellow, but not without some exceptions, as black and red. The length of a large lion is between eight and nine feet, and the height about four feet and a half. The formation of the eye is very similar to that of the cat, and unable in like manner to bear a strong light, and hence he seldom appears abroad in the day, but prowls about chiefly at night. The general residence of the lion is in hot countries, for the most part in the torrid zone, and he seems to partake of the ardour of the climate in which he lives. As all living creatures avoid him, he is, for the most part, obliged to have recourse to artifice to take his prey; and therefore, like the tiger, he bounds upon it from some place of concealment, and on these occasions easily makes a spring of *eighteen or twenty feet.* Sometimes he makes two or three bounds; but if he miss his object he gives up the pursuit, returns to his place of ambush, and lies in wait for another opportunity. For this purpose, like the tiger too, he commonly lurks near a spring, or on the brink of a river, where he may readily pounce upon such animals as come to quench their thirst.

In those regions where he has not experienced the dangerous arts and combinations of man, he has no apprehension from his power. He boldly faces him, and seems to brave the force of his arms. Wounds rather serve to provoke his rage than to repress his ardour, nor is he daunted by the opposition of numbers—a single lion in the desert often attacks an entire caravan, and after an obstinate combat, when he finds himself overpowered, instead of flying he continues to combat, retreating, and still facing the enemy till he dies.

The roaring of the lion is said to be so loud, that when heard in the night, and re-echoed by the mountains, it resembles distant thunder—the whole race of animals within its sound stand appalled, seeming to regard it as the sure prelude to destruction. Hence the *roaring* of the lion is often employed, especially by the sacred writers, to convey an idea of the terrible. "The lion has roared," says a prophet, "who will not fear?"

His voracity is also great. Buffon assures us, that he not only devours his prey with the utmost greediness, but he devours a great deal at a time, and generally fills himself for two or three days to come. Hence "a lion that is greedy of his prey" furnishes David with a comparison whereby to denote the fierceness and unrelenting character of his enemies. The lion has nevertheless been noted for ages for his magnanimity and generosity —he has a greater contempt for inferior enemies than almost any other large animal of prey. Many interesting instances have been furnished, both in ancient and modern times, of his generosity and wonderful strength of memory. Pliny relates, that the lion has such respect for the female sex, and for infants, that he will not attack them upon any occasion, and some travellers have repeated the sentiment.

The *Lioness* is readily distinguished from her noble mate by the want of the mane, which adds so much to his dignity of appearance. The lioness is equally courageous with the lion, and, when pressed by hunger, will attack every animal that comes in her way.

About the year 1650, says Mr. Bingley, when the plague raged at Naples, Sir George Davis, the English Consul there, retired to Florence. One day, from curiosity, he went to visit the Grand Duke's dens. At the further end of the place, in one of the dens, lay a lion, which the keepers, during three whole years, had not been able to tame, though all the art and gentleness possible had been used. Sir George no sooner appeared at the gate of the den than the lion ran to him with all the indications of transport that he was capable of expressing. He raised himself up and licked his hand, which Sir George put in through the iron grate. The keeper, affrighted, pulled him away by the arm, entreating him not to hazard his life by venturing so near the fiercest creature of his kind that had ever entered those dens. Nothing, however, would satisfy Sir George; but in spite of all the keeper said, he would go into the den. The instant he entered, the lion threw his paw upon his shoulders, licked his face, and ran about the place, fawning, and as full of joy as a dog would have been at the sight of his master. Such was his memory of an old acquaintance with whom he had been on board a ship on most intimate terms. Ths lion is said to be long-lived, although the precise period of his existence is perhaps unknown. The great lion called *Pompey*, who died in the Tower of London in 1760, was known to have been there above 70 years; and another, brought from Africa, died in the same place at the age of 63.

Compiled.

Would'st thou view the lion's den?
Search afar from haunts of men—
Where the reed-encircled fountain
Oozes from the rocky mountain,

By its verdure far descried,
'Mid the desert brown and wide.
Close beside the sedgy brim
Couchant lurks the lion grim,
Waiting till the close of day
Brings again the destined prey.

Heedless, at the ambush brink
The tall giraffe stoops down to drink;
Upon him straight the savage springs
With cruel joy!—The desert rings
With clanging sound of desperate strife—
For the prey is strong and strives for life;
Now, plunging, tries with frantic bound,
To shake the tyrant to the ground;
Then bursts like whirlwind through the waste,
In hope to escape by headlong haste;
While the destroyer on his prize
Rides proudly—tearing as he flies.

For life, the victim's utmost speed
Is mustered in this hour of need—
For life—for life—his giant might
He strains, and pours his life in flight;
And mad with terror, thirst, and pain,
Spurns with wild hoof the thundering plain.

'Tis vain; the thirsty sands are drinking
His streaming blood—his strength is sinking;
The victor's fangs are in his veins—
His flanks are streaked with sanguine stains;
His panting breast in foam and gore
Is bathed. He reels—his race is o'er!
He falls—and with convulsive throe,
Resigns his throat to the raging foe,
Who revels amidst his dying moans;
While gathering round to pick his bones,
The vultures watch in gaunt array,
Till the gorged monarch quits his prey.

Penny Magazine.

THE PELICAN.

The Pelican is a most singular and interesting bird, and well merits (as indeed in all ages it has received) the attention of the naturalist. It is equally at ease in the water or in the air. The shape and general appearance of its body resembles a goose more than any other bird with which you will be familiar; only it is not so flat in the back, and its head and beak look very different; and it so far exceeds it in size that you can scarcely fancy the difference. The Pelican often measures five or six feet from the point of the bill to the end of the tail, and ten or twelve feet from tip to tip of the wings. On land it is a heavy, inactive-looking bird, but it is not so in reality; on the contrary, it is extremely vivacious and agile; and when seen floating upon its wide-spreading wings over the undulating waves, few objects in nature present a more lively or even graceful appearance. The beauty of her motions is also agreeably heightened by her colour, which, with the exception of the black quill feathers of the wings, is of a delicate salmon, or blush colour.

The Pelican feeds upon living fish; and to enable her to catch them with facility, Nature has not only provided her for that purpose with an admirable fishing spear, but also with a great bag or pouch, in which she can hoard up supplies for future wants. Her fishing apparatus consists of an upper bill of great length, being no less than fifteen inches from the point to the opening of the mouth;—it is straight, broad, flattened above, and terminated by a slight hook;—and a lower bill, of a forked shape, the two branches of which meet, and form the point of the bill. From the lower edges of these hangs its fish-bag, reaching the whole length of the bill to the neck, and is capable of being so greatly stretched as to contain fifteen quarts of water, or a proportionate bulk of fish. When not in use, this bag, by an admirable contrivance, is wrinkled up in such a manner as to be entirely hidden in the hollow of the under bill.

Thus accoutred for a fishing excursion, the pelican sallies forth. When she rises to fly, she seems to perform it with difficulty; but this is probably owing to the bulk of her body and great expansion of wing, for when requisite she can display no ordinary activity of motion. Once on wing she soon sails majestically to some favourite haunt, where the finny tribes swarm in unsuspecting multitudes. These predatory excursions extend alike to the fresh river and the salt ocean, and are performed sometimes alone, but oftener in company. Arrived at an approved spot, she checks her fastly-flapping wings, and "turning the head with one eye downwards, casts a keen, inquiring look into the water beneath, and continues to fly in that posture." As soon as a fish is discerned sufficiently near the surface, she beats an upward stroke with her wings, at the same time discharging the air from her lungs, she darts down with the swiftness of an arrow, and souses with incredible impetus into the waters, which ring sharply as they close over, and shut her from the eye of the wondering beholder.

After remaining a few seconds, the victorious pelican emerges unwetted to the surface, the briny drops rolling from her blushing plumage;—joyously she lifts her twisting victim from his native element, and resigns it to the pouch, and sails with ease upon the rolling waters. At length loaded with spoil thus procured, the fish-bag stretched to an incredible extent, she returns with unerring precision to her resting-place, and, according to the season, either feeds herself, or her young, at leisure.—"The female pelican seldom quits her young, but is fed by the male, who crams his pouch with double his allowance, and then proceeds to shovel her fair share into his partner's throat. It is in this manner also that the young are fed, the old bird pressing his full pouch against his breast, and contriving thereby to disgorge a portion of its contents." The Hebrews call this bird the *vomiter*, evidently from this mode of discharging the contents of its bag. After feeding, this animal is inactive to the greatest degree, and it is only hunger that excites it to move. This bird has not only a melancholy aspect, but prefers the most solitary places for its residence. The writer of the hundred-and-second Psalm alludes to the lonely situation of the Pelican in the wilderness, as illustrative of the keenness of his own grief, at witnessing the desolation of his country, and the prostration of the sacred altars.

Compiled.

THE RATTLE-SNAKE.

The Rattle-Snake is a native of the American continent. It is not so large as the Boa, of which you have had an account, but is an enemy not less to be dreaded because of the deadly wound which it inflicts. It is dreadfully poisonous, and is chiefly distinguished for the fatality of its bite, and the rattle in its tail, with which it makes a loud noise on the least motion. This rattle is composed of several thin, hard, and hollow bones, linked together. It is doubtless a provision of kindness on the part of the All-wise Creator, who seeing fit to arm it with more than ordinary virulence of poison, has, in mercy to other creatures, so formed it, that in its every motion it sounds an alarm, which they instinctively know, and testify their terror by a precipitate retreat. The Rattle-Snake is sometimes found as thick as a man's leg, and more than six feet in length. Cases of recovery from the bite of this animal are very rare; some have expired under it in five or six hours.

Bingland.

The wonderful effect which music produces on the serpent tribes is now confirmed by the most respectable testimony. Music is often employed in the East to draw poisonous serpents from their various lurking places, and when listening to the melody are readily destroyed. The Rattle-Snake acknowledges the power of music, as much as any of his family, of which the following instance is a decisive proof. When Chateaubriand was in Canada, a snake of this species entered their encampment; a young Canadian, one of the party, who could play on the flute, to divert his associates, advanced with the new species of weapon. "On the approach of his enemy, the haughty reptile coiled himself into a spiral line, flattened his head, inflated his cheeks, contracted his lips, displayed his envenomed fangs, and his bloody throat; his double tongue glared like two flames of fire; his eyes were burning coals; his body, swollen with rage, rose and fell like the bellows of a forge; his dilated skin assumed a dull and scaly appearance; and his tail, which sounded the denunciation of death, vibrated with so great rapidity as to resemble a light vapour. The Canadian now began to play upon his flute: the serpent started with surprise, and drew back his head. In proportion as he was struck with the magic effect, his eyes lost their fierceness, the oscillations of his tail became slower, and the sound which it emitted became weaker, and gradually died away. The rings into which he had curled himself became gradually expanded, and sunk one after another upon the ground in concentric circles. The shades of azure green, white and gold, recovered their brilliancy on his quivering skin, and, slightly turning his head, he remained motionless in the attitude of attention and pleasure. At this moment the Canadian advanced a few steps, producing with his flute sweet and simple notes. The reptile, inclining his variegated neck, opened a passage with his head through the high grass, and began to creep after the musician, stopping when he stopped, and beginning to follow him again as soon as he moved forward." In this manner he was led out of the camp, attended by a great number of spectators, both savages and others, who could scarcely believe their eyes when they beheld the wonderful effect of this harmony. They unanimously decreed that the serpent which had so highly entertained them, should be permitted to escape. The Rattle-Snake is now comparatively seldom seen in this Province, and that only in certain districts. Indeed, as it seems to frequent only certain localities of a rocky or gravelly character, it was probably at no time spread over the country. They are still to be found about the Falls of Niagara, and the elevated ridges at the head of Lake Ontario. A peculiar natural basin in the bosom of these ridges, and where the thriving town of Dundas now stands, was formerly denominated by the Indians *Rattle-snake-den*. So greatly did they abound in that vicinity in former times, that some of the oldest settlers inform us that they were accustomed to *turn out* occasionally in a company to hunt out and destroy these dangerous reptiles. Compiled.

THE ELEPHANT.

The huge elephant: wisest of brutes!
O, truly wise! with gentle might endow'd:
Though powerful not destructive!

The Elephant is in every respect the noblest quadruped in nature,—in size and strength it surpasses all others, and in sagacity is inferior only to man. Were we, however, to take our idea of its capacity from its outward appearance, we should be led to conceive very meanly of its abilities. At first view it presents the spectator with an enormous mass of flesh, that seems scarcely animated. The huge body covered with a callous hide, without hair; its large misshapen legs, that seem scarcely formed for motion; its small eyes, large ears, and long trunk,—all give it an air of stupidity. But our prejudices will soon subside when we come to examine its history; they will even serve to excite our surprise, when we consider the various advantages it derives from so clumsy a conformation.

To describe their exact size is very difficult, as they have been seen from seven to fifteen feet high, and no description can carry a just idea of their magnitude, unless the animal itself has been presented to the view. Whatever care we take to imagine a large animal beforehand, yet the first sight of the creature never fails to strike us with astonishment, and to some extent exceeds our idea. This wonderful animal is a native of *Asia* and *Africa*, but is most numerous in the latter. They are found chiefly between the river Senegal and the Cape of Good Hope, and here they abound more than in any other part of the world.

Though the Elephant is the strongest as well as the largest of all quadrupeds, yet, in a state of nature, it is neither fierce nor mischievous; but, mild and peaceable in its disposition, it exerts not its strength. In its native places this animal is seldom seen alone, but appears to be particularly social and friendly with its kind, the oldest of the troop always appearing as the leader, and the next in seniority bringing up the rear. This order is, however, merely observed when they are upon the march in search of cultivated land, where they expect to have their progress impeded by the proprietors of those lands they are going to lay waste. They do incredible damage wherever they advance into cultivated ground, not only destroying vast quantities of food, but also destroying, by the enormous weight of their bodies, more than they eat. The inhabitants of the countries where they abound use every artifice to prevent the approach of these unwelcome visitants, making loud noises and kindling fires round their habitations; but notwithstanding all these precautions, the elephants sometimes break in upon them, and destroy their harvest. It is very difficult to repel the invaders; for the whole band advances together, and whether they attack, march, or fly, they generally act in concert. The largest elephants are found in India. The colour of this creature is not unlike that of the mouse—its skin is so hard that it can scarcely be penetrated, especially on the back; the most tender part being under the belly. Although its eyes are peculiarly small, yet they are quite expressive of what the animal feels. Its sense of smelling is also very delicate, and it manifests a great fondness for odoriferous flowers. Its hearing is also acute; and no animal is so exquisitely affected by the touch. It has four teeth in each jaw, with which it grinds its meat like meal; besides these it has two others, which hang out beyond the rest; these are ivory, and commonly called *tusks*. In the male they grow downwards, in the female upwards. Those of the male are larger, while those of the female are sharper. It is said one of them is always kept sharp to revenge injuries; and with the other it roots up plants and trees for food. The tusk of the male grows to about ten feet in length, and is frequently found to weigh upwards of three hundred pounds. The teeth of the female, however, are considered the most valuable. Its legs are massy columns of three or four feet in circumference, and five or six in height—its feet are rounded at the bottom, divided into five toes covered with skin, so as not to be visible. The sole of the foot is covered with a skin as thick and hard as horn. This animal is also nearly destitute of hair, and the skin is uneven and wrinkled, and full of deep fissures, resembling the bark of an old tree. When tamed, the elephant kneels to receive his rider or burden, and the joints which it thus bends are about the middle of its legs like the knee of a man; and contrary to other quadrupeds the hind knees bend forward. But the most singular and peculiar characteristic of this animal is its trunk; and of all the instruments which the superabundant wisdom and goodness of the Creator has bestowed on the various forms of animal life, this is perhaps the most complete and most admirable.

The trunk is, properly speaking, only the snout lengthened out to a great extent, hollow like a pipe, and ending in two openings or nostrils, like those of a hog. An elephant about 14 feet high, has the trunk about eight feet long. This fleshy tube is composed of nerves and muscles. It is capable of being moved in every direction, of being lengthened and shortened, of being bent or straightened—so pliant as to embrace every body, and yet so strong that nothing can be torn from its grip. Through this the animal drinks, and smells, as through a tube; and at the very point of it, just above the nostrils, there is an extention of the skin, about five inches long, in the form of a finger, and which in fact serves all the purposes of one. By means of this the elephant can take a pin from the ground, untie the knots of a rope, unlock a door, &c., and hold anything so firmly that no force can take it from his grasp. With this instrument the elephant also gathers its food and puts it to its mouth as with a hand. Its manner of drinking is equally extraordinary. For this purpose the animal dips the end of his trunk in water, and sucks up just as much as fills that great tube completely. It then lifts its head with the trunk full, and turning the point into its mouth, as if it intended to swallow trunk and all, it drives the point below the opening of the wind-pipe. The trunk being in this position, and still full of water, the elephant then blows strongly in at the other end, which forces the water it contains into the throat, down which it is heard to pour with a loud gurgling noise, which continues till it is all blown down. The elephant brings forth only *one* young one at a time, and that about the size of a large calf, and grows to thirty. If it receives no hurt it will live from one to two hundred years. Of all animals, the elephant, when once tamed, is the most gentle and obedient. Its attachment to its keeper is remarkable; and it seems to live but to serve and obey him, and when treated with kindness, testifies it gratitude by kind caresses. In drawing burdens its strength is equal to that of six horses, and without fatigue it can support for a considerable journey about 4,000 pounds upon its back. These animals are used in drawing chariots, waggons, &c., and are of remarkable use in carrying great quantities of luggage across rivers. They can travel nearly 100 miles a day, and 50 or 60 regularly, without any violent effort.

Though this animal seems capable both of affection and gratitude, disappointment or injustice produces resentment and spleen. Before the destructive use of fire-arms was known, the princes of the East placed their chief dependance in war on the number and discipline of their elephants; but now they chiefly use them for parade or beasts of burden. Regarding the manner of taking and taming them, you will receive information in a subsequent section.

Guide to Knowledge.

SAGACITY OF THE ELEPHANT.

Many interesting anecdotes have been told of the remarkable sagacity of the elephant. The following are well authenticated:

An elephant that was kept at Versailles seemed to be sensible of it when any one attempted to make sport of him, and to keep the affront in mind till he found an opportunity for retaliation. A painter wished to make a drawing of this animal in an unusual attitude, with his trunk elevated and his mouth open. In order to keep the elephant in this position, the artist's servant threw fruit into his mouth, but more frequently only made him believe that he was about to do it. Although this greatly irritated the elephant, he did not attack the servant, but, as if sensible that the painter was the instigator of the deception that had been practised upon him, he directed his eyes towards the latter, and threw out of his trunk such a quantity of water upon him as completely spoiled the drawing.

This elephant generally availed himself less of his strength than of his ingenuity. He once unbuckled with the greatest calmness and deliberation, a strong leathern strap which had been fastened round his legs, and as his attendant had tied the buckle round with pack-thread, and secured it with many knots, the animal very deliberately unloosed them all without breaking the strap or the pack-thread.

A soldier in India refused to give the road to an elephant and his conductor, at which the elephant was highly affronted. Some days after, meeting the soldier upon the banks of a river, at a time when he had not his keeper with him, he seized him with his trunk, ducked him several times in the water, and then let him go.

In Delhi, an elephant passing along the streets, put his trunk into a tailor's shop, where several people were at work; one of them pricked the end of it with his needle; the animal passed on; but in the next dirty puddle filled his trunk with water, returned to the shop, and spurting every drop among the people who had offended him, spoiled the work.

Guide to Knowledge.

AMERICAN MOCK BIRD.

The Mock Bird is about the size of a Robin, of a uniform grey colour, with a reddish bill. Its natural notes are musical and solemn; but it possesses the singular power of assuming the tone of every other animal, whether quadruped or bird, from the wolf to the raven and the wren. It seems to divert itself with alternately alluring and terrifying other birds. Sometimes it entices them with the call of their mates, and, on their approach, terrifies them with the screams of the eagle, or some other bird of prey. It frequents the habitations of mankind, and is easily domesticated. It builds its nest in the fruit-trees near the houses of planters; and sitting sometimes most of the night on the tops of their chimnies, assumes its own native melody, and pours forth the sweetest and most various airs.

Bingland.

In Hippisley's description of the scenery of the Apure, he mentions a circumstance which illustrates well the remarkable accuracy with which the Mock-bird mimics almost any sound—even that of the human voice.

"On ascending the Apure, our people had, as usual, landed to cook their suppers, and to prepare food for consumption on the following day. The night had been wholly spent on shore by both officers and men. The hammock on which I slept was suspended between two trees, at some height from the ground, and to windward of the fires. Here the mocking-bird gave me a most decisive proof of its powers of utterance, and its capability of articulating two or more syllables, with such clearness of sound and expression, as to astonish all who heard it. At day-light, when I awoke, having occasion to speak to one of the officers, and not seeing him near me, I called aloud on his name. I called a second time, when I was told he was gone down to our boat. In a few seconds after, I heard a voice similar to my own, repeating equally loud, 'Denis! Denis! Denis! Denis!' with the usual pause between. This call Captain Denis himself distinctly heard, thought it mine, and answered that he would be with me directly; and, from the constant repetition, he imagined that the nature of my business must be urgent, and hurried himself accordingly. Several of the non-commissioned officers who also heard the call, directed others to 'pass the word for Captain Denis as the Colonel wanted him.' Our eyes and ears being at length directed to the spot, we discovered that my obliging, attentive, and repeating friend was sitting in the form of a bird on the upper branch of a small tree near me, from whence he soon took his flight, making the very woods resound with the name of "Denis'"

Hippisley's Narrative.

THE CROCODILE.

The Crocodile is one of the most terrible and mischievous animals which is to be found in nature. It frequently grows to the size of 20 feet in length, and five feet in circumference. Some, it is said, have even been found of the length of 30 feet. The fore legs have the same parts and conformation as a man's hands, each paw having five fingers. The hind legs, including the thigh and the foot, are about two feet two inches long, divided into four toes, united by a membrane, or web, like those of a duck, and armed with large claws. The head is long and flat, and the eyes are very small. Its jaws open to the terrible width of fifteen inches and a half. The skin is defended by a suit of armour, composed of large scales, almost impenetrable to a musket-ball. The general colour of this animal is a dark ash-coloured brown on the upper part, and a whitish citron on the belly—the sides being speckled with large spots of both of these colours. The formidable creature spares neither man nor the fiercest quadruped that comes within his reach. Combats frequently take place between it and the tiger. Such is its amazing strength, that, with a single stroke of its tail, it has frequently been known to overturn a canoe. This animal abounds in the Nile, the Niger, the Ganges, and other great rivers of Africa, and the warmer parts of Asia and America.

Bingland.

THE BEAR.

Bears constitute a large family of that tribe of carnivorous quadrupeds which are distinguished by their resting entirely on the soles of their feet, from the toes to the heel, in the act of walking, and hence called by Cuvier and his followers, plantigrades, that is, *broad-footed*. They have six incisor, and two canine or dog teeth in each jaw, and twelve molars (*grinders*) in the upper, and fourteen in the lower jaw. The incisors, or cutters, are of a pointed form, and are hence not well fitted for cutting animal food; the canines of both jaws are large, strong, and curved backwards; and the molars broad, flattened, and in place of the cutting edges and sharp points of those of their more ferocious associates, are covered with tubercles of the same kind as those in the human grinders. In fact the carnivorous is completely merged in the gramnivorous character, and these animals, notwithstanding their great strength and savage nature, are so far from being of a sanguinary habit, that they derive the chief portion of their food, from the vegetable kingdom. This structure of their molars should be distinctly borne in mind by the youthful reader, as it is of the greatest importance in determining the real habits of the animals. Thus upon a hasty inspection, he might have concluded from the formidable size and tearing form of the canines, that they must of necessity belong to an animal of the most destructive propensities, and whose food was wholly flesh; but we see that the grinders, on the contrary, indicate an omnivorous habit, and this determines the use of the canines to be chiefly for defence.

The old proverb, "As clumsy as a bear," very aptly describes the loose-skinned, thick-set ungainly appearance of the tribe. The bones are hard, and in many situations, have thick and jagged knobs for the insertion of the vast moving muscles, which, throughout the whole frame, are of prodigious power. The limbs are short, and their movements quick but awkward; the feet large, with broad callous cushions on the sole; and the toes, five on each foot, terminated with short, stout, blunt claws, and more adapted for climbing and burrowing, than for the purpose of seizing or rending victims,—a circumstance which beautifully accords with the structure of the teeth. The forehead is broad, the snout long, and cleft at the end by the nostrils, which, together with the lips are very moveable, and when drawn back so as to uncover the canine teeth, give to the head a most savage and malicious expression. The tail is so small that American bear-hunters, at the death of their victim, often joke Europeans, by asking them to take hold of it, believing that it is not to be found by a stranger. The skin is very loose, and thickly covered with hair, mostly of a shaggy texture, and which, in the European species, is of a brown colour; in the American black; in the Asiatic, yellowish white and ruddy brown; and in the Polar bear, white. The bear, as its low forehead and small-sized brain indicate, possesses no greater intelligence than the degree of shallow instinctive cunning, necessary for capturing a seal, robbing a bee's nest, defending its young, or avoiding the footsteps of a hungry lion. The senses of the bear are strong and admirably suited to his wants and pleasures. The eyes are small, but strong, and so placed as to embrace a large circle of vision; the ears of a moderate size, rounded and pricked forward, to catch the first foot-fall of the distant enemy. The nose is large and presents extensive surfaces for the distribution of olfactory nerves, and as might thus naturally be expected his scent is very keen. The voice is a melancholy and repulsive howl. The number of species at present known, is upwards of twenty, and have mostly been discovered within the last twenty-five years. The bear is found in most parts of all the continents except Africa, where its presence is questioned.

In a state of nature bears are lonely, unsocial creatures; their time is exclusively spent in feeding and sleeping. They feed on berries, roots of trees, eggs, insects, and, where it is procurable, will invade the haunts of men, and make off with a sheep, or pig, or any small domestic animal. They are very active, patient of fatigue, climb trees and hills with great facility, and, buoyed up by their fat, swim with great dexterity. The female usually produces two cubs at a litter, which for the first six weeks, closely resemble young puppies; her affection for them is so great, that in defending them she has been often known to sacrifice her own life with incredible bravery. During the autumnal months, the bear accumulates an immense quantity of fat. The animal thus becomes of a most unwieldy bulk, foregoes its customary activity, and as the winter approaches, usually retires to some favourable shelter, and having scratched away a portion of the earth, or crept into a hollow fallen tree, lies down, and drops into a torpid slumber, which lasts till the returning spring. Thus disposed the first snow storm covers him equally from the chilling winds, and the inquisitive eye of the hunter. During the winter sleep, the fat accumulated is absorbed into the system, and supplies the heat and nourishment necessary to existence. A most beautiful provision by Him whose goodness is over all his creatures. The female continues in her retreat longer than the male, and in its security gives birth to her young, which do not come forth till strong enough to join her perambulations. Should any adventurous foe then attempt their capture, or offer her any annoyance, she at once rushes on him with ferocity, rears upon her hind legs, and standing erect, seizes him with her fore paws, and proceeds to sqeeze him to death. This fatal hug, is the mode of attack common to all bears. When the prophet Elisha was at Bethel, he was mocked by some wicked " youths out of the city," and God, we are told, brought " two she bears out of the wood, and tare forty and two of them." Her affection for her young, and fierce valor in defending them, are noticed in several parts of Scripture; thus Hushai opposing the council of Ahitophel, warns Absalom that David and his warriors were " mighty men, chafed in their minds, as a bear robbed of her whelps in the field." And God, by his prophet Hosea, threatening Ephraim with punishment, says, "I will meet them as a bear that is bereaved of her whelps." The Syrian bear, which is the species alluded to in the Bible, is about four feet and a half long, and two and a half high; of a yellowish white colour, hair long and harsh, resting on woolly fur, the legs longish, and the body of a more spare habit than most other species.

The Polar bear is the largest of the tribe to which it belongs; its fur is generally of a white colour; its head and neck narrower and longer than in the other species. It dwells in the inhospitable shores of Greenland, Spitzbergen, and the Arctic Sea; there, among eternal snows, and floating masses of ice, this tremendous animal roams in search of food, enduring the utmost intensity of cold with perfect impunity. This animal often attains a most extraordinary size. One is mentioned by Captain Ross, that measured seven feet ten inches from nose to tail, and weighed 1160 pounds. Unlike the rest of the tribe, the male Polar bear does not appear to slumber in the winter months.

Abridged from the Weekly Visitor.

THE SECRETARY BIRD.

This remarkable bird of which you are now to receive an account, is an excellent illustration not only of the adaptation of the structure of animals to their local situation and general habits, but of the great service which, in the exercise of their natural instincts, many animals confer upon man.

The Secretary bird belongs to the order *raptores*, or birds of prey, and may be considered as the representative of a family, of which, as yet, but one genus is discovered, and of that genus but one species. For although classed by many authors among the vultures, it has hardly one feature in common with the family; and on the other hand, it possesses characters which also alienate it from the eagles and falcons. The sandy plains of Southern Africa, interspersed with tracts of shrubby vegetation, are the dwelling places of this elegant bird, and its food is the deadly snake, and various reptiles which invest a region exposed to the rays of a burning sun.

When standing erect, its height is upwards of three feet; its bill is sharp and crooked; a row of strong black eye-lashes, like bristles, on the upper eye-lid, protect the sight from the glare of too strong a light; from behind the head springs a tuft of long feathers, whence, from some fancied resemblance to pens stuck behind the ear, has arisen its common name; these feathers can be raised up at the will of the bird, so as to form a beautilul crest; and at the bend of the wing are two horny knobs, or blunt spurs. The legs are of extreme length, and moderately strong; in walking, the bird appears as if raised on stilts. This length of limb is not only of use in enabling the bird to pass with facility over loose and yielding sand, and through tangled brushwood, but, as we shall see, operates in conjunction with its wings as weapons of defence. From its address in destroying snakes, it is called at the the Cape of Good Hope, "slang-eater," or snake-eater; and Dr. Sparrman states that "it first opposes one wing and then the other, to avoid the bite of the snake, as well as to bruise it; it then spurns and kicks the reptile with great violence, or takes it in its claws and dashes it against the ground so forcibly as often to kill it at a single attempt. Dr. Solander has seen the bird thus instantaneously destroy a snake or a tortoise. To do this the more effectually, the secretary-bird has the power of striking or kicking forwards with its leg, and not backwards, so that with the blow it throws its adversary before it; hence it secures the advantage of keeping its foe always in its eye, and of being prepared to receive and parry its attack. It finishes the dying struggles of its victims by crushing the skull with its sharp and pointed bill.

Habits such as these have gained it the good-will of the settlers and colonists, by whom it is sometimes kept tame, mixing with the poultry on a very friendly footing, and rewarding its masters by an incessant warfare against the whole tribe of reptiles, rats, locusts, and large insects. In its wild state it is by no means shy or timid, but hops leisurely away on its long legs; or, if pursued, runs with great swiftness, but not readily taking to the wing. The secretary-bird is not gregarious, but lives in company with its mate alone; its nest is built at the top of tall trees, and sometimes shrubs. The female is said to lay two eggs as large as those of a goose, of a white colour, spotted with reddish-brown.

The general colour of this interesting bird is a light grey, the quill-feathers and secondaries are black, as also the feathers of the crest and thighs; the two middle feathers of the tail, which are double the length of the rest, are grey, becoming black towards their extremities, and ending in a tip of white, as do the rest of the tail-feathers, which are otherwise black.

Weekly Visitor.

USEFULNESS OF WATER.

There is scarcely any thing of which we in Canada are more wasteful than water. In tropical, sultry countries, where that precious element is as scarce as it is plentiful here, the waste of a single drop of it would be viewed with all the abhorrence due to a positive act of criminality. In this country, on the contrary, it may be fairly questioned whether many do not waste as much as they use. This great difference between the conduct of those in different circumstances in relation to the same article, strikingly illustrates a principle we have all often heard laid down, viz., that we never attach its full value to any thing till we have painfully experienced the want of it.

Having scarcely any lack of water, and finding it always at hand when we need it, we do not feel conscious of half the obligations of health and comforts which we owe to it. As a pure and refreshing beverage how valuable is it to a great part of our population; and it would be much better for the health of all were it more generally and largely used for this purpose. It is undoubtedly the chief, if not the only beverage intended for us by nature. And it is very well ascertained that water-drinkers are generally free from those painful chronic complaints, which are common to those who indulge in more exciting draughts. But besides its use as a mere beverage, there are very few kinds of beverage which can be prepared without its aid.

If you would have a familiar illustration of the importance of water in the daily and hourly occurrences of life, think of your obligations to it from the time of your rising in the morning, till the hour of sleep at night, and you will find it administering either directly or indirectly to your various wants and habits. How great is the comfort, as well as the healthfulness of the practice, which results to us from the application of water to the body! And again, the change of very considerable portions of our raiment, is rendered equally comfortable and salutary, in consequence of having been previously submitted to the process of washing. The infusion of coffee, or tea, which is an essential part of the earliest meal of many, could not be prepared without water; neither could flour, of which your bread consists, have been kneaded. The same thing may be said of the subsequent meals.

Independent, however, of its value and importance, as directly and immediately necessary to our comfort and subsistence, its indirect and remote necessity is equally observable in all that surrounds us. There is scarcely an article of our apparel, in some part of the preparation of which water has not been necessarily employed; in the tanning of the leather of our boots and shoes; in the dressing of the material of which linen is made; in the dying of the wool of our warmest clothing, or of the materials of our hats.

"Without water the china or earthen cups, out of which we drink, could not have been turned on the lathe; nor the bricks, so important in house-building, nor the mortar by which they are cemented, have been formed. The ink with which we write, and the paper which receives it, could not have been made without the use of water. The knife with which we divide our solid food, and the spoon which conveys it in a liquid form to the mouth, could not have been properly formed without the application of water during some part of the process of making them.

"By water the medicinal properties of various vegetable and mineral substances are extracted and rendered portable, which could not be introduced into the animal system in a solid state;

and this element itself becomes occasionally a most powerful medicinal instrument, by its external application, in every one of its forms; whether as a liquid, under the name of the cold or warm bath, or in the form of ice, in restraining inflammation and hemorrhage; or lastly, in the application of the vapour bath."

But the uses, the important and most of them indispensable uses of water, are so multifarious, that a mere enumeration of them would occupy a far larger space than can be here afforded. You have only to observe what is passing around you to perceive its vast importance. Having once perceived it, and reflected upon the result of your observation, you will not only more fully appreciate the value of water, but feel more strongly the benevolence of Him to whom we owe the abundance of it.

Compiled.

LAWS OF VEGETATION.

There are certain laws according to which plants uniformly grow. Those of the same species always yield seeds alike as to shape, arrangement of parts, and essential qualities. These seeds too, invariably produce plants of the same kind as those that produced them; the offspring resembling their parents in their roots, stems, barks, leaves, flowers, and physical properties—even to the colours they bear and the odours they send forth. The roots are extended to the places where their nourishment is to be obtained, into crevices of rocks, and sometimes in a very remarkable manner. A tree, growing on a high wall, has been known to produce a root several yards long, extending down the side of the wall into the ground at the bottom, from whence the plant, which must otherwise have perished, derived its nourishment. Another, growing on one side of a wall, has been known to shoot its roots across it to find a more favourable soil on the opposite side. Ivy growing against a wall or a tree, sends off roots which adhere to the neighbouring substance, in order to give support to the weak and slender branches, which otherwise, unable to support themselves, must fall down. Vines, pease, and various plants which are slender, throw off tendrils to twist round any object that can afford them aid. Others, as hops and running beans, growing against a tree or upright stick, curl round it spirally to a great height, and then obtain the support they need. And such plants as thus screw themselves around any object for support, uniformly do so in one way, and by no efforts can be made to go round in the other direction. Some flowers open in the morning to receive the sunbeams, and fold up as the evening approaches; others do so at the distant approach of rain; and a funnel-shaped flower in Sumatra is called "the fair-one of the night," because it only blows at that time. Other phenomena are equally curious. Every different species of vegetables has, indeed, its own peculiar laws, which it regards in every new race, from age to age:—no old law is dropped, no new law appears. How amazingly, then, are the power and wisdom of the Lawgiver!

Weekly Visitor.

THE LOCUST.

> "   A pitchy cloud
> Of locusts warping on the eastern wind."

The locust belongs to an order of insects termed *orthoptera*, that is, *straight-winged*, and is nearly allied to our grass-hopper and crickets. Like them it has hind legs, of great length, which enable it to leap to a distance, and wings of considerable extent for sailing on the breeze. Its head has been compared to that of a horse, and there is, in truth, a certain resemblance. It is armed with two pair of strong jaws, by which it can both lacerate and grind its food. They leap like grass-hoppers, making at the same time a hissing noise. If we take a locust and examine it, we shall see in it, as respects its individual powers, little to dread, and much to admire; it is indeed a beautiful creature, and were a few only scattered over the land, its name would not have been a word of terror; but it visits not in sparing numbers, but in myriads; and where they settle famine ensues. Hence the locust is justly dreaded.

> "Onward they came, a dark continuous cloud
> Of congregated myriads numberless,
> The rushing of whose wings was as the sound
> Of a broad river headlong in its course,
> Plunged from a mountain summit; or the roar
> Of a wild ocean in the autumn storm
> Shattering its billows on a shore of rocks."
>
> **Southey.**

Of all the insect plagues which have been permitted by Providence to ravage the labour of the husbandman, and blight the hopes of the year, bringing both famine and disease in their train, the greatest scourge is the locust. In the eastern regions this scourge has spread at occasional and uncertain intervals, over the whole face of a country. Northern Africa especially, has ever been subject to the inroads of this worst of armies; hence the Arabians feign the locust, as saying to Mahommet, "We are the army of the great God."

By this small and feeble thing, the Almighty has often punished a guilty land. If we turn to the book of Exodus, we shall find the earliest written account of the plague of the locust, when God, in his wrath, visited the Egyptian Pharaoh and his people, for their oppression of the Israelites. Such a visitation can only be conceived by those who have witnessed their sweeping and dreadful ravages. They commonly come with the east wind, and it is asserted that they have a government similar to bees. Solomon, however, who was a skilful naturalist, denies that they have any king. When they fly, they proceed in one compact form, similar to a disciplined army on a march.

The Arabs eat them in a fried state with salt and pepper, as do the natives of Barbary; and they constituted a principal part of the food of John the Baptist, and still form part of the food of the poor in Asia. The richest country visited by them, almost instantly appears like a desert; they eat up every green thing. "Other animals," says Bochart, "flee away at the sight of man; but these animals, of their own accord attack him. Accordingly when a cloud of locusts is coming, all persons retire into their houses, that they may not by going abroad provoke their rage, Nor is there the least prospect of repelling them by any weapon, nor are they easily wounded, since by their own lightness and the smallness of their bodies, they would elude any strokes that might be made at them; and besides, it is justly observed by Claudian,

> "Their native clothing fortifies the back,
> And nature arms them with a coat of mail."

No places are secure from these bold invaders; no mounds, no bulwarks, no strong high walls, shall stop their march; and houses and secret chambers are infested with these noxious creatures."

In the year 591, Italy was ravaged by an infinite army of locusts, which being cast into the sea, produced from the stench of their putrefaction, and also doubtless from the famine of the land, a pestilence which carried off nearly a million of men and beasts. "In the Venetian territory also, in 1478, more than 30,000 persons are said to have perished in a famine occasioned by these terrific scourges."

"I never saw," says Dr. Philip, "such an exhibition of the helplessness of man, as I have seen to-day. While we were sitting at dinner, a person came into the house quite pale, and told us that the locusts were approaching. Every face gathered blackness. I went to the door. I looked above, and all around, and saw nothing. "Look to the ground," was the reply, when I asked where they were. I looked and there I saw a stream of young locusts without wings, covering the ground at the entrance of the village. The stream was about 500 feet broad, and covering the ground, moving at the rate of two miles an hour. In a few minutes they covered the garden wall, some inches deep. The water was immediately let into the channel, into which it flows, to water the garden. The stream carried them away, and after floating in it about a hundred paces, they were drowned. All hands were now at work to keep them from the gardens, and to keep them from crossing the streams. To examine this phenomenon more closely, I walked about a mile and a half from the village, following the course of the stream of locusts. Here I found the stream extending a mile in breadth, and like a thousand rivulets, all flowing into one common channel. It appeared as if the dust under my feet were forming into life, as if God, when He has a controversy with the people, could raise the very earth on which they tread in arms against them. Man can conquer the tiger, the elephant, the lion, and all the wild beasts of the desert—he can turn the course of mighty rivers—he can elude the violence of the tempest, and chain the winds to his car—he can raise the waters into clouds, and by means of steam, create a power that is yet beyond human measurement—he can play with the lightnings, and arrest the thunders of heaven—but he is nothing before an army of locusts. Such a scene as I have seen this afternoon, would fill England with more consternation than the terrific cholera. One of the people here informed me, that he had seen a stream that continued ten days and nights, flowing upon his place. During that time every person in the place was at work to preserve his garden. As to the corn fields they were obliged to give them up. They continued to the fifth day defending the gardens. On the evening of the fifth day, the locusts were between five and ten feet deep, and the mass by this time became terrible, and literally fell in pieces over the garden walls." A description of the locust, which has never been equalled for graphic truth and sublimity you will find in your Bibles, in the second chapter of the prophecy of Joel.

Compiled.

THE SCORPION.

Among the many objects of natural history alluded to in the Holy Scriptures, is the Scorpion, a creature with which the natives of Syria, and the adjacent regions have ever been well acquainted. In every age this creature has been regarded with terror and abhorrence; it is spread (at least various species) throughout the hot climates, not only of Europe, Asia, and Africa, but of America also, living among loose stones, mouldering walls, crumbled buildings, and the crevices of uninhabited houses. This creature, which is the most malignant of all the insect tribes, is shaped somewhat like an egg, and is very hideous in its appearance. Those found in Europe seldom exceed four inches in length, but in the tropical climates it is no uncommon thing to meet them twelve inches long. This similarity in shape to an egg illustrates the comparison our Lord draws between the scorpion and an egg. The animal is furnished with strong, hard jagged claws, with which it seizes its prey; but this is not the circumstance which renders it so terrible, it is the possession of a sting. The sting, which is somewhat hooked, and very sharp, terminates the last joint of the tail, and instils into the wound it inflicts, a poisonous fluid through two minute orifices, having in this respect considerable analogy with the poison-fang of the rattle-snake, or other venomous serpents. The tail is composed of six joints, or distinct portions, and usually held in a turned up position over the back ready for the assault; the legs are four on each side. The body is composed of a broad portion called the thorax, covered with a single plate, succeeded by another portion covered with seven narrow pieces, overlapping each other like the plates of ancient coats-of-mail. The eyes are very curiously situated, and I doubt if you could discover them were they not pointed out to you. On the broad plate of the thorax, which is grooved down the middle, are situated eight eyes,—one in the middle, on each side of the furrow, and three very small, at the forward angle or projection which this plate makes, on each side. They are covered with a transparent horny case, like a minute watch-glass, so as to be defended from injury. The food of the scorpion consists of insects, such as beetles and larvæ, which it seizes with its claws, (which proceed from its head) then destroys with its sting, and lastly crushes, by passing gradually between the claws, in order to prepare it for being devoured. The lion and tiger regard their young with fond complacency—not so the scorpion; it is more ferocious and malignant than these daring but noble animals, sparing neither its own young, which it kills and devours with avidity, nor the smaller and feebler of its own species; selfish and unnatural cruelty seem to be its innate characteristics.

In Europe its venom is seldom fatal except to the smaller animals;

but in hotter regions, more serious consequences, and even death, are occasioned by its sting. "The sting of certain kinds common in South America, causes fevers, numbness in various parts of the body, tumours in the tongue, and dimness in sight, which symptoms last from 24 to 48 hours. The only means of saving the British soldiers who were stung by them in Egypt, was amputation. One species, is said to occasion madness, and the black scorpion, both of South America and Ceylon, often inflicts a mortal wound." All this will show what force there is in that expression, a 'lash of scorpions.' "Could you see," say Kirby and Spence, "one of these ferocious animals, perhaps a foot in length, advancing towards you in their usual menacing attitude, with its claws expanded, and its many-jointed tail turned over its head, were you ever so stout-hearted, I think you would start back and feel a horror come across you; and though you knew not the animal, you would conclude that such an aspect of malignity must be the precursor of malignant effects. Nor would you be mistaken."

Altered from Weekly Visitor.

THE FOLLY OF ATHEISM, SHEWN FROM NATURE.

ARGUMENTATIVE.

The meanest insect we can see, the minutest and most contemptible weed we can tread upon, is really sufficient to confound atheism, and baffle all its pretensions. How much more that astonishing variety and multiplicity of God's works, with which we are continually surrounded! Let any man survey the face of the earth, or lift up his eyes to the firmament; let him consider the nature and instinct of brute animals; afterwards look into the operations of his own mind; will he presume to say, or to suppose, that all the objects he meets with are nothing more than the result of unaccountable accidents and blind chance? Can he possibly conceive that such wonderful order should spring out of confusion? or that such perfect beauty should be ever formed by the chance operations of unconscious, inactive particles of matter? As well, nay, better, and more easily, might he suppose that an earthquake might happen to build towns and cities; or the materials carried down by a flood fit themselves up with hands into a regular fleet. For what are towns, cities, or fleets, in comparison of the vast and amazing fabric of the universe!

Dr. Balguy.

Bishop Watson justly remarks, that "the argument for the existence of God, which is drawn from a contemplation of nature, is so clear and so strong, that the most ignorant can comprehend it, and the most learned cannot invent a better."

To study God, God's student, man, was made;
To read him as in Nature's text conveyed,
Not as in heaven; but as he did descend
To earth, his easier book; where to suspend
And save, his miracles, each little flower,
And lesser fly, shows his familiar power!

Sir W. Davenant.

DERIVATIVES OCCURRING IN SECTION III.

Root and Meaning.	Derivatives and Meaning.
Aro, I plow	*Ar*able, fit for tillage
Aroma, all sweet spices or herbs	*Aroma*, a general name for all sweet spices
Axioma, proposition, a maxim	*Axiom*, a self-evident proposition
Bitumen, a kind of fat clay	*Bitum*inous, composed of bitumen
Cavus, hollow	Ex*cav*ate, to hollow out
Chronos, time	*Chron*icle, an account of events in the order of time
Clamo, I call out, clamatus, cried out	De*clam*ation, discourse addressed to the passions
Crater, a large cup or bowl	*Crater*, the mouth of a volcano from which the fire issues
Duco, I lead	E*duc*ation, formation of mind and manners
Fluo, I flow	Af*flu*ence, plenty, riches
Frango, I break, fractus, broken	Re*fract*, to break the course of rays in light
Fundus, a foundation	Pro*found*, deep, thorough
Gigas, gigantis, a giant	*Gigant*ic, bulky, enormous
Granum, a grain or kernel	*Granu*lation, the act of breaking into small grains
Gradior, I step	*Grad*ual, advancing by steps
Halo, I breathe	Ex*hale*, to breathe out
Haeres, haeredis, an heir or heiress	*Hered*itary, descending from father to son
Hymen, the god of marriage	*Hymen*eal, belonging to marriage
Imago, imaginis, an image or picture	*Imagin*ation, fancy, idea
Labor, I slip or slide, lapsus, slipped	E*lapse*, to glide away
Lex, legis, a law	*Legis*lator, a lawgiver
Linum, flax	De*lineate*, to draw the outlines
Ludo, I play	*Lud*icrous, merry, exciting laughter
Lumen, lux, light	*Lumin*ous, shining, emitting light
Manus, a hand	*Man*ual, performed by hand
Mare, the sea	*Mar*ine, belonging to the sea
Melior, better, more excellent	*Amelior*ate, to improve
Mergo, I plunge or dip, mersus, plunged	Im*merge*, im*merse*, to put under water
Navis, a ship	*Nav*igate, to pass by ship, to sail
Necros, dead (see *polis*, in this list)	*Necro*polis, a city of the dead
Nuptus, marriage	*Nup*tials, pertaining to marriage

ROOT AND MEANING.	DERIVATIVES AND MEANING.
Numerus, a number	*Numer*ical, denoting number
Ordo, ordinis, an order, a rank	Sub*ordin*ate, inferior in order
Poena, punishment, poeniteo, I vex	*Penit*entiary, a prison where felons are kept at hard labor
Pendo, I weigh	Per*pend*icular, directly downwards
Plaudo, I praise	Ap*plaud*, to express approbation
Polis, a city	Necro*polis*, (see Necros)
Radius, a ray, a spoke	Ir*radi*ate, to illuminate
Ritus, a ceremony (in religion)	*Rite*, solemn act of religion, external observance
Rego, I rule	*Reg*ulate, to adjust by method
Seco, I cut	Dis*sect*ion, separating of animal bodies
Similis, like	Dis*simil*ar, unlike, as*simil*ate, to make like
Skopeo, I see	Tele*scope*, a glass to view distant objects
Spiro, I breathe	In*spire*, to hale
Stipulor, I demand or bargain	*Stipul*ate, to contract or settle terms
Strophe, a turning	Cata*strophe*, the final event of a play, &c.
Theatrum, a theatre	Amphi*theatre*, a circular building with rows of seats one above another.
Tingo, I dye, stain, or sprinkle	*Tinge*, to imbue with colour
Turba, a crowd	Per*turb*ation, disorder
Tome, a section or cutting	Epi*tome*, an abridgement
Ventilo, I blow or fan	*Ventil*ation, vent, the act of fanning
Veho, I carry	*Veh*icle, any means of conveyance, a carriage
Video, I see, visus seen	*V*izier, the Prime Minister of the Turkish Empire
Vitrum, glass	*Vitr*ify, to change into glass
Volvo, I roll up, volutus, rolled	*Volute*, a scroll at the top of a column

SECTION III.

DESCRIPTION OF PLACES, MANNERS, &c.

MOUNT ETNA.

This single mountain contains an epitome of the different climates throughout the world, presenting at once all the seasons of the year, and all the varieties of produce. It is divided into three distinct zones or regions, which are known by the names of the cultivated region, the woody or temperate region, and the frigid or desert region. The former of these extends through twelve miles of the ascent towards the summit, and is almost incredibly abundant in pastures and fruit-trees of every description. It is covered with towns, villages, and monasteries; and the number of inhabitants distributed over its surface is estimated at 120,000. In ascending to the woody or temperate region, the scene changes; it is a new climate, a new creation. Below, the heat is suffocating; but here the air is mild and fresh. The turf is covered with aromatic plants; and gulfs, which formerly ejected torrents of fire, are changed into woody valleys. The last, or desert region, commences more than a mile above the level of the sea. The lower part is covered with snow in winter only; but in the upper half of this sterile district the snow constantly lies. On the vastness and beauty of the prospect from the summit of Etna, all authors agree. Mr. Houel was stationed there at sunrise, when the horizon was clear, and without a single cloud. The coast of Calabria was, he says, undistinguishable from the adjoining sea; but in a short time a fiery radiance began to appear from behind those Italian hills, which bounded the eastern part of the prospect. The fleecy clouds, which generally appear early in the morning, were tinged with purple; the atmosphere became strongly illuminated, and, reflecting the rays of the sun, seemed to be filled with a bright refulgence of flame. Although the heavens were thus enlightened, the sea still retained its dark azure, and the fields and forests did not yet reflect the rays of the sun. The gradual rising, however, of this luminary, soon diffused light over the hills which lie below the peak of Etna. This last stood like an island in the midst of the ocean, with luminous points multiplying every moment around, and spreading over a wider extent with the greatest rapidity. It was, said he, as if the world had been observed suddenly to spring from the night of non-existence. The most sublime object, however, which the summit of Etna presents, is the immense mass of its own colossal body. Its upper region exhibits rough and craggy cliffs, rising perpendicularly, fearful to the view, and surrounded by an assemblage of fugitive clouds, to increase the wild variety of the scene. Amid the multitude of woods in the middle or temperate region are numerous mountains, which in any other situation, would appear of gigantic size, but which, compared to Etna, are mere mole hills. Lastly, the eye contemplates with admiration the lower region, the most extensive of the three, adorned with elegant villas and castles, verdant hills, and flowing fields, and terminated by the extensive coast, where, to the south, stands the beautiful city of Catania, to which the waves of the neighbouring sea serve as a mirror.

Clarke's Wonders of the World.

SWEDISH PEASANTS.

Our journey to Stockholm has been through a country wilder than you can imagine; vast lakes, high mountains, dismal forests; from which, at every opening, I dreaded to see bears, or wolves, rush out upon us. Scarcely a town to be seen: a single cottage was quite a rarity; and then our fare has been so hard, I was almost afraid of being starved. The first night we slept in a peasant's hut, built upon a barren rock, and surrounded on every side by the thickest woods. We could get nothing to eat, but salted meat and Swedish bread. Oh! what bread! I wish you could taste it. They bake but twice a year, and the cakes are so hard, they are sometimes obliged to chop them with a hatchet. They do not make loaves, but large round cakes, which they pile upon sticks, and then hang them up to the ceiling; they are made of rye and oats, and in times of scarcity (which I suppose must often happen here) they mix the inner bark of trees, rasped to powder, with the flour; which makes the bread so black and so bitter, that nothing but hunger could induce one to eat. The houses are generally built of wood, and painted red; but the cottages are formed of logs piled one above another, and the roofs are covered with turf, upon which I have often seen goats browsing. We have frequently been obliged to lodge in these hovels; so I have had an opportunity of seeing how the country people live. Their beds are the drollest things I ever beheld. To save room, they are placed one above another; the women sleep in that on the floor, and the men in one which is fixed above the top of the tester; they are obliged to get into it by the help of a ladder. But though these people are so very poor, they are civil and ingenious. They contrive to make useful things of what we should fling away as worth nothing. They twist ropes from hogs' bristles, horses' manes, and the bark of trees, and they use eel-skins for bridles. The coarse cloth they wear is of their own making; we mostly found the wives and daughters busied in carding, spinning, or weaving. The women do every thing here, that men are employed about in other countries; they sow, plough, thrash, and work with the bricklayers. They all wear veils, the country people as well as the ladies, to shade their eyes from the glare of the snow in winter, and in summer from the scorching rays of the sun, reflected from the barren rocks.

Wakefield.

THE LLANOS, OR PLAINS OF SOUTH AMERICA.

There is something awful, but sad and gloomy, in the uniform aspect of these steppes. Everything seems motionless. Scarcely does a small cloud, passing across the zenith, cast its shadow on the savanna. I know not whether the first aspect of the *Llanos* excites less astonishment than that of the Andes. Mountainous countries, whatever may be the absolute elevation of the highest summits, have all many characteristics somewhat common to them all; but we accustom ourselves with difficulty to the view of the *Llanos* of Venezuela, and Casnare, the *Pampas* of Buenos Ayres, and Choco, which continually recall to mind during journeys of twenty or thirty days, the smooth surface of the ocean. I had seen the plains of La Mancha in Spain, and the real steppes that extend from Jutland, through Luneberge and Westphalia, to Belgium; but the plains of the west and north of Europe present but a feeble image of the *Llanos* of South America. All around us the plains seemed to ascend towards the sky; and that vast and profound solitude appeared like an ocean covered with sea-weeds. According to the unequal mass of vapours diffused through the atmosphere, and the various temperatures of the different strata of air, the horizon was in some parts clear and distinct, in other parts undulating, and as if striped. The earth was there confounded with the sky. Through the dry fog and strata of vapour, the trunks of palm-trees were discerned at a great distance. Stripped of their foliage and their verdant tops, these trunks appear like the masts of ships discovered at the horizon.

The *Llanos* and *Pampas* of South America are real steppes. They display a beautiful verdure in the rainy season, but in the time of great drought assume the aspect of a desert. The grass is then reduced to powder, the earth cracks, the alligator and the great serpents remain buried in the dried mud, till awakened from their lazy lethargy by the first shower of spring. These phenomena are observed on barren tracts of fifty or sixty leagues in length, wherever the savannas are not traversed by rivers; for, on the borders of rivulets, and around little stagnant pools of water, the traveller finds at certain distances, even during the period of great droughts, thickets of mauritia—a palm, the leaves of which spread out like a fan, preserve a brilliant verdure.

The chief characteristic of the savannas or steppes of South America, is the absolute want of hills and inequalities—the perfect level of every part of the soil. Accordingly the Spanish conquerors, who first penetrated from Coro to the banks of the Apure, did not call them deserts, or savannas, or meadows, but plains—

Llanos. Often in a space of thirty square leagues, there is not an eminence of a foot high. This resemblance to the surface of the sea strikes the imagination most powerfully, where the plains are altogether destitute of palm-trees, and where the mountains of the shore and of the Oronoco are so distant that they cannot be seen.

Humboldt.

THE RUINS OF HERCULANEUM.

An inexhaustible mine of ancient curiosities exists in the ruins of Herculaneum, a city lying between Naples and Mount Vesuvius, which, in the first years of the reign of Titus, was overwhelmed by a stream of lava from the neighbouring volcano. This lava is now of a consistency which renders it extremely difficult to be removed, being composed of bituminous particles, mixed with cinders, minerals, and vitrified substances, which altogether form a close and ponderous mass.

In the revolution of many ages, the spot it stood upon was entirely forgotten; but in the year 1713 it was accidentally discovered by some labourers, who, in digging a well, struck upon a statue on the benches of the theatre. Several curiosities were dug out and sent to France, but the search was soon discontinued, and Herculaneum remained in obscurity till the year 1736, when the King of Naples employed men to dig perpendicularly eighty feet deep; whereupon not only the city made its appearance, but also the bed of the river which ran through it.

In the temple of Jupiter were found a statue of gold, and the inscription that decorated the great doors of the entrance. Many curious appendages of opulence and luxury have since been discovered in various parts of the city, and were arranged in a wing of the palace of Naples, among which are statues, busts, and altars; domestic, musical, and surgical instruments; tripods, mirrors of polished metal, silver kettles, and a lady's toilet, furnished with combs, thimbles, rings, ear-rings, &c.

A large quantity of manuscripts was also found among the ruins; and very sanguine hopes were entertained by the learned, that many works of the ancients would be restored to light, and that a new mine of science was on the eve of being opened; but the difficulty of unrolling the burnt parchments, and of decyphering the obscure letters, has proved such an obstacle, that very little progress has been made in the work.

The streets of Herculaneum seem to have been perfectly straight and regular; the houses well built and generally uniform; and the rooms paved either with large Roman bricks, mosaic work, or fine marble. It appears that the town was not filled up so unexpectedly with the melted lava as to prevent the greater part of the inhabitants from escaping with their richest effects; for there were not more than a dozen skeletons found, and but little gold or precious stones.

The town of Pompeii was involved in the same dreadful catastrophe, but was not discovered till near forty years after the discovery of Herculaneum. Few skeletons were found in the streets of Pompeii; but in the houses there were many, in situations which plainly proved that they were endeavouring to escape when the tremendous showers of ashes intercepted their retreat.

Kotzebue.

POMPEII.

The shroud of years thrown back, thou dost revive,
Half-raised, half-buried, dead, yet still alive!
Gathering the world around thee, to admire
Thy disinterment, and with hearts on fire,
To catch the form and fashion of the time
When Pliny lived and thou wert in thy prime;
So strange thy resurrection, it may seem
Less waking life than a distressful dream.

Hushed is the once-gay scene! nor murmurs more
The city's din, the crowd's tumultuous roar,
The laugh convivial, and the chiming sound
Of golden goblets with Falernian crown'd;
The mellow breathings of the Lydian flute,

And the sweet drip of fountains as they shoot
From marble basements—these, all these are mute.
Closed are her springs, unnumbered fathoms deep,
Her splendid domes are one dismantled heap,
Her temples soiled, her statues in the dust,
Her tarnished medals long devoured by rust;
Its rainbow-pavements broken from the bath,
The once-thronged Forum—an untrodden path;
The fanes of love—forgotten cells; the shrines
Of vaunted gods—inurned in sulphur mines,
The abodes of art, of luxury, and taste—
Tombs of their once-glad residents—a waste,
O'er which compassionate years have gradual thrown,
The trailing vine, and bade the myrtle moan!

Lyrical Gems.

LAPLANDERS.

A Laplander might be known anywhere from the inhabitants of more temperate climates, by his short, squat figure, large head, flat face, and small dark-grey eyes. Their summer dress is made of dark coarse cloth; but in winter their breeches, coats, shoes, and gloves, are made of the skins of the rein-deer, with the hair outwards. What a droll sight must a Lapland woman be, equipped in this manner! for they dress like the men, except a small apron of painted cloth, and a few more rings and trinkets. They are, notwithstanding, fond of finery, and contrive to embroider their awkward clothes with brass-wire, silver, or coloured wool, which they are skilled in dying of various hues. In winter they are glad to eat dried fish, or the flesh of any animal they can catch; but they never think of either roasting or boiling it, they devour it raw. The eggs of wild-geese, and other water-fowl, which breed in prodigious numbers on the borders of the lakes, supply them with food in the spring; and when the breeding season is over, they live upon the birds. Some of the people are maintained wholly by fishing; while others are employed in tending their flocks of rein-deer, and wander about the mountains from place to place. They live in tents of coarse cloth, which they carry about with them, and pitch for a short time wherever it suits their convenience. But the fishermen build villages, such as they are, near some lake. When they want to make a hut, they take large poles, or the bodies of trees, and place them slanting in the ground, in the form of a circle, so that they meet at top, except a small opening, which is left for the smoke to pass through. Instead of a carpet, they cover the ground with branches of trees; and the door is made of rein-deer skins like two curtains. During several months in winter these poor people never see the sun; but the beautiful Aurora Borealis (or *streamers*, or *northern-lights*, as it is sometimes called), and the reflection of the snow, to a certain degree make them amends. Of what use would a carriage be to a Laplander, when he travels over deserts of snow? The wheels would be presently clogged up, and he could proceed no farther. Therefore, if he has a little way to go, he puts on his snow-shoes, which are made very long, to keep him from sinking. But if he has occasion to go a distance, he harnesses his rein-deer to a sledge, made in the form of a boat; and, after whispering something to the animal, which he is so foolish as to suppose it understands, he seats himself on the sledge, and is carried away with surprising swiftness.—In spite of the cold, the absence of the sun, and the barrenness of the soil, the Laplander loves his own country better than any other; and prefers his hut and his rein-deer to the conveniences of more civilized nations.

Wakefield.

They ask no more than simple nature gives,
They love their mountains, and enjoy their storms.
Their rein-deer form their riches. These, their tents,
Their robes, their beds, and all their homely wealth
Supply their wholesome fare and cheerful cups.
Obsequious at their call, the docile tribe
Yield to the sled their necks, and whirl them swift
O'er hill and dale, heaped into one expanse
Of marbled snow, as far as eye can sweep,
With a blue crust of ice unbounded, glazed.

By dancing meteors, then, that ceaseless shake
A waving blaze, reflected o'er the heavens.
And vivid moons and stars that keener play
With double lustre from the glassy waste,
Even in the depth of polar night they find
A wond'rous day: enough to light the chase,
Or guide their daring steps to Finland fairs.
Wished Spring returns, and from the hazy south,
While dim Aurora slowly moves before,
The welcome sun, just verging up at first,
By small degrees extends the swelling curve,
Till seen at large for gay rejoicing months,
Still round and round his spiral course he winds,
And as he nearly dips his flaming orb,
Wheels up again, and re-ascends the sky.

SCENERY OF THE APURE.

If we were surprised, delighted, and sometimes intimidated by our near approach to the various creatures both by land and water; if we gazed with admiration on the beautiful plumage of the birds, as we passed up the Oronoco, how much wonder, astonishment and terror, joined with a certain degree of pleasure at seeing the inhabitants on the Apure increasing as it were, an hundred fold in numerical proportion to what we had before seen or imagined? I should dread to describe what I saw and heard, were it not that all my companions could vouch for my accuracy. Crocodiles, fourteen and sixteen feet long, were basking on the sedges near the banks of the river, in groups of six or eight; every minute others were seen floating down the stream, many of which the men struck with the oars of the boat, and others were apparently wounded with ball, fired from pistols or muskets, but none materially injured. Tigers of a very large size were visible on the sands, and a large animal once, which the men conceived to be a lion, but which was probably a variety of the leopard, as the king of the forest is unknown in this climate.

The numerous flocks of birds, flying from side to side of the river, and passing over our heads, were almost too many to count, and some of the flocks so prodigious, as absolutely to shade, during the interval of their passage, the rays of the sun. The shores of the river were lined with every sort of marine and tropical birds; all of which, as if unconscious of the approach or power of man, suffered us to look at and pass them unheeded, from the large pelican down to the smallest genus of the crane. Here the flamingo was seen in all its stateliness and grandeur. The crown-crane was also perceptible, and a bird of the same genus as the crane, although far more beautiful in symmetry and appearance, which I had frequently seen in South Africa, where it is called the secretary. What with birds, beasts, amphibious animals, fish and reptiles, the eye was at length tired with the everlasting succession, and the mind could wonder no longer. The mocking-bird, a native of these immense forests, gave me decisive proof of its powers of utterance, and its capability of articulating two or more syllables with astonishing clearness. To none of the parrot tribe do I yield a preference; nor did I ever hear one of them repeat words, and pronounce them so distinctly as to create a doubt whether or not they were uttered by the voice of man.

Hippesley's Narrative.

THE PYRAMIDS OF EGYPT.

We were roused so soon as the sun dawned, by Anthony, our faithful Greek servant and interpreter, with the intelligence that the pyramids were in view. We hastened from the cabin; and never will the impression made by their appearance be obliterated. By reflecting the sun's rays, they appear as white as snow, and of such surprising magnitude, that nothing we had frequently conceived in our imagination had prepared us for the spectacle we beheld.

The sight instantly convinced us, that no power of description, no delineation can convey ideas adequate to the effect produced by viewing these stupendous monuments. The formality of their construction is lost in their prodigious magnitude; the mind, elevated by wonder, feels at once the force of an axiom, which however disputed, experience confirms, that in vastness, whatever be its nature, there dwells sublimity. Another proof of their indescribable power is, that no one ever approached them under other emotions than those of terror. * * * * *

With what amazement did we survey the vast surface that was presented to us when we arrived at this stupendous monument, which seemed to reach the clouds. Here and there appeared some Arab guides upon the immense masses above us, like as many pigmies, waiting to show the way to the summit. Now and then we thought we heard voices and listened; but it was the wind in powerful gusts sweeping the immense ranges of stone. Already some of our party had begun the ascent, and were pausing at the tremendous depth which they saw below. One of our military companions, after having surmounted the most difficult part of the undertaking, became giddy in consequence of looking down from the elevation he had attained; and being compelled to abandon the project, he hired an Arab to assist him in effecting his descent. The rest of us, more accustomed to the business of climbing heights, with many a halt for respiration, and many exclamations of wonder, pursued our way towards the summit. The mode of ascent has been frequently described; and yet, from the questions which are often proposed to travellers, it does not appear to be generally understood. The reader may imagine himself to be upon a staircase, every step of which to a man of middle stature, is nearly breast high, and the breadth of each step is equal to its height, consequently, the footing is secure; and, although a retrospect going up, be somewhat fearful to persons unaccustomed to look down from any considerable elevation, yet there is little danger of falling. In some places, indeed, where the stones are decayed, caution may be required; and an Arab guide is always necessary, to avoid a total interruption; but, upon the whole, the means of ascent are such that almost every one may accomplish it. Our progress was impeded by other causes. We carried with us a few instruments, such as our boat-compass, a thermometer, a telescope, &c.; these could not be trusted in the hand of the Arabs, and they were liable to be broken every instant. At length we reached the topmost tier, to the great delight and satisfaction of all the party. Here we found a platform, thirty-two feet square, consisting of nine large stones, each of which might weigh about a ton; although they are much inferior in size to some of the stones used in the construction of this pyramid. Travellers of all ages, and of various nations, have here inserted their names. Some are written in Greek, many in French, a few in Arabic, one or two in English, and others in Latin. We were as desirous as our predecessors to leave a memorial of our arrival; it seemed to be a tribute of thankfulness due for the success of our undertaking; and presently every one of our party was seen busied in adding the inscription of his name.

Dr. E. D. Clarke.

FALLS OF NIAGARA.

The form of the Niagara Falls is that of an irregular semicircle, about three quarters of a mile in extent. This is divided into two distinct cascades, by the intervention of Goat Island, the extremity of which is perpendicular, and in a line with a precipice over which the water is projected. The cataract on the Canada side of the river is called the Horse-shoe, or Great Fall, from its peculiar form—and that next the United States the American Fall.

The Table Rock, from which the Falls of the Niagara may be contemplated in all their grandeur, lies on an exact level with the edge of the cataract on the Canada side, and, indeed forms a part of the precipice over which the water gushes. It derives its name from the circumstance of its projecting beyond the cliffs that support it, like the leaf of a table. At this point a magnificent amphitheatre of cataracts burst upon my view, with appalling suddenness and majesty. However, in a moment the scene was concealed from my eyes by a dense cloud of spray, which involved me so completely, that I did not dare to extricate myself. A mingled and thundering rushing filled my ears. I could see nothing, except when the wind made a chasm in the spray, and then tremendous cataracts seemed to encompass me on every side; while below, a raging and foaming gulf of undiscoverable extent lashed the rocks with its hissing waves, and swallowed, under a horrible obscurity, the smoking floods that were precipitated into its bosom. At first the sky was obscured by clouds, but after a few minutes the sun burst forth, and the breeze subsiding at the same time, permitted the spray to ascend perpendicularly. A host of pyramidal clouds rose majestically one after another from the abyss at the bottom of the fall; and each, when it had ascended a little above the edge of the cataract, displayed a beautiful rainbow, which in a few minutes was gradually transferred into the bosom of the cloud that immediately succeeded. The spray of the Great Fall had extended itself through a wide space directly over me, and, receiving the full influence of the sun, exhibited a luminous and magnificent rainbow, which continued to over-arch and irradiate the spot on which I stood, while I enthusiastically contemplated the indescribable scene.

The great body of water which composes the middle part of the Great Fall is so immense, that it descends nearly two-thirds of the space without being ruffled or broken, and the solemn calmness with which it rolls over the edge of the precipice is finely contrasted with the perturbed appearance it assumes after having reached the gulf below. But the water towards each side of the Fall is shattered the moment it drops over the rock, and loses as it descends, in a great measure, the character of a fluid, being divided into pyramidal-shaped fragments, the bases of which are turned upwards. The surface of the gulf below, and the cataract present a very singular aspect; seeming, as it were, filled with an immense quantity of hoar frost, which is agitated by small and rapid undulations. The particles of water are dazzlingly white, and do not apparently unite together, as might be supposed, but seem to continue for a time in a state of distinct comminution, and to repel each other with a thrilling and shivering motion, which cannot easily be described.

Howison.

REFLECTIONS ON THE FALLS OF NIAGARA.—MEDITATIVE.

The thoughts are strange that crowd into my brain
When I look upward to thee. It would seem
As if God poured thee from his "hollow hand,"
And hung his bow upon thine awful front;
And spoke in that loud voice, which seemed to him
Who dwelt in Patmos for his Saviour's sake,
"The sound of many waters," and had bade
Thy fluid to chronicle the ages back,
And notch his centuries in the eternal rocks.
Deep calleth unto deep. And what are we,
That hear the question of that voice sublime?
Oh! what are all the notes that ever rung
From war's vain trumpet, by thy thundering side!
Yea, what is all the riot that man makes
In his short life, to thy unceasing roar!
And yet, bold bauble, what art thou to Him,
Who drowned a world, and heaped the waters far
Above its loftiest mountains?—a light wave,
That breaks, and whispers of its Maker's might.

Brainard.

EGYPTIAN MUMMIES AND EMBALMING.

When any Egyptian died, the whole of his family, and all his friends, laid aside their usual dress, and put on mourning, abstaining during the period of lamentation from the bath, and from the use of wine and other luxuries. The mourning lasted forty or seventy days, probably according to the quality of the person. They seem to have had a notion that a time would come when the soul would be re-united to the body on earth, and so they endeavoured to preserve the body as a fit residence for its future guest. This was done by embalming, which was performed in three different ways; and accordingly there were three different scales of funerals, costly, moderate, or cheap. It is supposed that it would require considerably over 1000 dollars to pay for the best style of embalming a body; for the second rate nearly 300; and for the third, or cheap method, a trifling sum was demanded. Thus the various classes of people may be generally distinguished by the mode of their preservation. These embalmed bodies are what are now called mummies, and which are still found in Egypt, and carried by the curious into other countries.

Among the Egyptians were a set of persons, who, like modern undertakers, took upon themselves the whole service of the funeral for a stipulated amount. Proper officers were then employed to perform their respective duties. The duty of the first was to mark out how the dissection was to be made in the dead body for the purpose of embalming; this was executed by another officer with a sharp Ethiopian stone, which served the purpose of a knife; and the task as seeming to imply disrespect and cruelty to the dead, was so hateful and degrading as to oblige the dissector instantly to fly as if he had committed a crime, those about pursuing and assailing him with stones;—a superstitious practice, by which they probably thought to make amends for an act they thought sinful in itself.

At the disappearance of the dissector the embalmers came forward. They were a sort of distinct class hereditary in Egypt; were there held in high respect, looked upon as sacred, and permitted to have access to the temples, and to associate with the priests. They removed from the body (by the cuts made by the dissectors) the parts most susceptible of decay, washing the rest with palm wine, and filling it with myrrh, cinnamon, and various sorts of spices. After this the body was put into salt for about forty days. It was then swathed in a fine lawn bandage, glued together with a thin but powerful gum, and then crusted over with the most exquisite perfumes. By these means not only was the figure of the body entirely preserved, but the lineaments of the face, and even the eye-brows and eye-lashes were preserved in their natural perfection. In this state some of the Egyptians kept the bodies of their ancestors, in open cases, with glasses before them. They were thus set upright commonly in niches in the walls for that purpose. Others were placed in the same way in sepulchres. It is always valuable and interesting to perceive ancient customs, as handed down by general historians, illustrating the inspired records of Holy Writ. In the Book of Genesis we read that "Joseph commanded his servants the physicians, to embalm his father; and the physicians embalmed Israel. And forty days were fulfilled for him; for so are fulfilled the days of those which are embalmed; and the Egyptians mourned for him three score and ten days." In this passage the forty days said to be fulfilled, mean the days of his continuing in the salt of nitre, without including the thirty days passed in performing the above mentioned ceremonies, and making up the three-score and ten during which they mourned.

There is considerable difference of appearance in the cases or coffins which contain mummies. These were usually made of sycamore; some of the large cases contain others within them, either of wood or painted plaster. The bodies of the priests were more particularly folded in the swathing cloth than those of others. Their arms and legs were not enclosed in the same envelope with the body, as in the common mode, but were bandaged separately, even the fingers and toes being thus preserved distinct. Belzoni, a celebrated traveller who explored the interior of the pyramids and furnished much new information about these curious practices, entered tombs which contained the mummies of inferior creatures (mingled with those of human beings), such as bulls, monkeys, dogs, rats, crocodiles and birds; and one tomb was filled with nothing but cats, carefully folded, in red and white linen, the head covered by a mask representing the cat within. This animal was held by these idolators sacred; and if one was killed, either designedly or by accident, the unfortunate offender was punished with death. They must, you may thus judge, have had plenty of these animals. In a city of Egypt, in the reign of Tiberius, 7000 Romans were killed by the Egyptians, in a tumult, because a Roman soldier had killed—a cat!

Compiled.

DESCRIPTION OF A PRISON IN AMERICA.

We visited the Penitentiary, or State Prison, at a place called Sing Sing, on the east bank of the Hudson River, at the distance of thirty miles from New York. I have yet seen nothing in any part of the world, in the way of prisons, which appeared to be better managed than this establishment. I have been told, in a general way, that several hundred convicts were employed at this spot, in the construction of a prison, in which they themselves were eventually to be confined; but I could scarcely credit the accounts which described the degree of order and subordination maintained among a set of the most hardened ruffians anywhere to be found. Accordingly, although prepared in some degree, my astonishment was great, when I approached the spot, and saw only two sentinels placed along the height, from whence I looked down upon two hundred convicts at work. Some of them were labouring in a large marble quarry, others in long wooden sheds surrounding the spot, and some were engaged in various parts of the new prison, an extensive stone building, running parallel to the river, about one-third of which had been finished, and made habitable. There was an air of confident authority about all the arrangements of this place, which gave us a feeling of perfect security, though we were walking about unarmed amongst cut-throats and villains of all sorts. There was something extremely imposing in the profound silence with which every part of the work of these people was performed. During several hours that we continued amongst them, we did not hear even a whisper, nor could we detect, in a single instance, a change of looks amongst the convicts, or what was still more curious, a side-long glance at the strangers. Silence, in fact, is the essential, or I may call it, the vital principle of this singular discipline. When to this are added unceasing labour during certain appointed hours, rigorous seclusion during the rest of the day, and absolute solitude all night, there appears to be formed one of the most efficacious combinations of moral machinery that has ever perhaps been seen in action. The whole secret of the astonishing success of this plan lies in preventing the prisoners from holding any kind of communication with each other, however slight and transient. Each prisoner, accordingly, has a separate sleeping place, seven feet in length, seven high, and three and a half wide, built of solid blocks of stone, and secured by an iron door, the upper part of which contains orifices smaller than a man's hand. Through this grate a sufficient supply of air is admitted, and as much light and heat as are necessary. The ventilation is made complete by a sort of chimney or air pipe, three inches in diameter, which extends from the upper part of the apartment to the roof of the building. These cells, or sleeping berths, are placed in rows of one hundred in each, one above another, and in appearance by no means unlike wine-bins in a cellar, only deeper, wider, and twice as high. Each tier has in front of it a narrow gallery, just wide enough for a man to pass, and connected at the ends with a stair-case. As soon as the prisoners are locked up for the night, each in his separate cell, a watchman takes his station on the ground-floor abreast of the lower tier, or, if he thinks fit, he may walk along the galleries, past the line of doors. His feet being shod with mocasins, his tread is not heard, when he himself can hear the faintest attempt at communication made by one prisoner to another; for the space in front of the cells seems to be a sort of whispering or sounding-gallery, of which fact I satisfied myself by actual experiment, though I do not well know the cause. In this way the convicts are compelled to pass the night in solitude and silence; and I do not remember, in my life, to have met with any thing so peculiarly solemn, as the death-like silence which reigned, even at noon-day, in one of these prisons, though I knew that many hundreds of people were close to me. At night the degree of silence was really oppressive; and, like many parts of this curious establishment, must be witnessed in person to be duly understood.

The convicts are awakened at sunrise by a bell; but, before they are let out, the clergyman of the establishment prays from a station so chosen, that without effort he can readily make himself heard by all the prisoners on that side of the building; that is to say, by 400, or one half of the number confined. The turnkeys now open the doors, and a word of command being given, each of the prisoners steps out of his cell into the gallery, they are then formed into close line, and made to march what is called the lock-step, with their eyes turned towards their keeper, along the passages to the work-shops. On leaving the building, the different divisions or gangs, under the several turnkeys, make a short halt in the outer-yard, to wash their hands and faces, and also to deposit their tubs and water-cans, which are taken up by another set of prisoners, whose duty it is to attend to the cleaning department of the household. Another party of the prisoners attend to the cooking; another to washing clothes; in short, the whole work is done by the convicts. The main body of the prisoners are then marched to their fixed tasks; some to hew stones, or to saw marble; some to forge iron; some to weave cloth; while others are employed as tailors, shoemakers, coopers, and in various other trades. Each shop is under the charge of a turnkey, of course not a convict, but a man of character, and known to be trust-worthy, who, besides other qualifications, is required to be master of the business there taught. The prisoners, when in their working-shops, are placed in rows, with their faces all turned in one direction, so that they cannot communicate by looks or signs. Each turnkey has not less than twenty nor more than thirty men under his charge. The general superintendent of the prison has a most ingenious method of watching, not only the prisoners, but also the turnkeys. A narrow dark passage runs along the back part of all the work-shops, from whence the convicts sitting at their tasks, as well as their turnkeys, can be distinctly seen through narrow slits in the wall, half an inch wide, and covered with glass, while the superintendent himself can neither be seen nor heard by the prisoners or by the keepers. At a fixed hour, eight, I believe, a bell is rung, upon which all work is discontinued; the prisoners again form themselves into a close line under their turnkey, and when the order is given to march, they return back to their cells. Each one now stops before his door with his hands by his side, motionless and silent like a statue, till directed by his keeper to stoop down for his breakfast, which has been previously placed for him on the floor of the gallery. They next turn about and march in, after which the iron doors of their cells are locked upon them, while they take their comfortless meal in solitude. After twenty minutes have elapsed, the prisoners are marched to their work, which goes on in the same uninterrupted style till noon, when they are paraded once more to their cells, where they take their lock-up unsociable dinner, and then pace again to their dull, silent round of hard labour. On the approach of night the prisoners are made to wash their hands as they did in the morning, and then, as before, at the sound of the yard-bell, to form themselves into lines, each one standing in order, according to the number of his night's quarters. As they pass through the yard, they take up their cans and tubs, and proceed finally for this day to their cell-doors, where their supper of mush and molasses awaits them as before. At a fixed hour they are directed by a bell to undress and go to bed; but just before this, and as nearly at sunset as may be, the resident clergyman again prays. It is very important to know, from the best qualified local authorities, that the efficacy of this practice, considered as a branch of the prison discipline, and independently of its other valuable considerations, has been very great. It will not be supposed, nor is it pretended by the friends of the plan, that its effects are in every case beneficial, and that all, or any great number of the convicts are to be reformed. It is surely enough if it can be shown, that of all the plans of penitentiary discipline which have been tried, this one affords the best chance for success.

Hall.

AFRICAN DESERTS.

The most striking feature of Africa consists of the immense deserts which pervade its surface, and which are supposed to comprise one-half of its whole extent. The chief of these is, by way of eminence, called Sahara, or the Desert. It stretches from the shores of the Atlantic, with but few interruptions, to the confines of Egypt, a space of more than 45 degrees, or 2700 geographical miles, by a breadth of 12 degrees, or 720 geographical miles. It is one prodigious expanse of red sand, and sand-stone rock, of the granulations of which the red sand consists. It is, in truth, an empire of sand, which seems to defy every exertion of human power or industry, although it is interspersed with various islands, and fertile and cultivated spots of different sizes, of which Fezzan is the chief of those which have been hitherto explored.

Nearly in the centre of this sandy ocean, and nearly midway between the Mediterranean Sea and the coast of Guinea, rise the walls of Timbuctoo, the capital of the very interesting empire of Bambara—a city which constitutes the great mart for the commerce of the interior of Africa. To maintain this commerce is the laborious work of the caravans, which cross this enormous desert from almost every part of the African coast. The mode in which it is traversed is highly curious.

The caravans consist of several hundred loaded camels, accompanied by the Arabs, who let them out to the merchants for the transport of their goods. During their route they are often exposed to the attacks of the roving Arabs of Sahara, who generally commit their depredations on the approach to the confines of the desert. In this tiresome journey, the caravans do not proceed to the place of their destination in a direct line across the trackless desert, but turn eastward or westward according to the situation of certain fertile, inhabited, and cultivated spots, called *oasis*, interspersed in various parts of the Sahara, like islands in the ocean. These serve as watering places to the men, as well as to feed, refresh, and replenish the hardy and patient camels. At each of these cultivated spots, the caravan sojourns about seven days, and then proceeds on its journey, until it reaches another spot of the same description. In the intermediate journey, the hot winds, denominated *simoons*, are often so violent, as considerably, if not entirely, to exhale the water carried in skins by the camels for the use of the passengers and drivers. On these occasions it is affirmed by the Arabs, that five hundred dollars have been frequently given for a draught of water, and that ten or twenty dollars are commonly paid when a partial exhalation has occurred.

In 1805, a caravan proceeding from Timbuctoo to Tafilet was disappointed at not finding water at one of the usual watering places, when, horrible to relate, the whole of the persons belonging to it, two thousand in number, besides one thousand eight hundred camels, perished of thirst! Accidents of this nature account for the vast quantities of human and other bones, which are found heaped together in various parts of the desert.

Clarke's Wonders.

PILLARS OF SAND IN THE DESERT.

At one o'clock we alighted among some acacia trees, at Waadi el Halboub, having gone twenty-one miles. We were here at once surprised and terrified by a sight, surely one of the most magnificent in the world. In that vast expanse of desert, from west to south-west of us, we saw a number of prodigious pillars of sand at different distances, at times moving with great celerity, at others stalking on with a majestic slowness; at intervals we thought they were coming in a very few minutes to overwhelm us; and small quantities of sand did actually more than once reach us. Again they would retreat so as to be almost out of sight, their tops reaching to the very clouds. There the tops often separated from the bodies; and these, once disjointed, dispersed in the air, and did not appear more. Sometimes they were broken in the middle, as if struck with large cannon-shot. About noon, they began to advance with considerable swiftness towards us, the wind being strong at north. Eleven ranged alongside of us about the distance of three miles. The greatest diameter of the largest seemed to me, at that distance, as if it would measure ten feet. They retired from us with a wind at south-east, leaving an impression upon my mind to which I can give no name, though surely one ingredient in it was fear, with a considerable deal of wonder and astonishment. It was in vain to think of flying; the swiftest horse, or fastest sailing ship, could be of no use to carry us out of danger; and the full persuasion of this riveted me as if to the spot where I stood.

On a subsequent occasion the same appearance of moving pillars of sand presented themselves in form and disposition like those we had seen at Waadi el Halboub, only they seemed to be more in number and less in size.

They came several times in a direction close upon us; that is, I believe, within less than two miles. They began immediately after sunrise, like a thick wood, and almost darkened the sun. His rays, shining through them for near an hour, gave them an appearance of pillars of fire. Our people now became desperate; the Greeks shrieked out, and said it was the day of judgment; Ishmael pronounced it to be hell, and the Turcorories, that the world was on fire.

Bruce's Travels.

THE DUTCH.

In their houses, the Dutch have all the elements of comfort and substantial elegance. Their chief, if not only extravagance, is their collection of paintings, which, in the possession of many private individuals, are often of great excellence and value. Private equipages are rare. The general hereditary maxim among all classes is to regulate expenses according to income, be the latter ever so limited. And all in trade, or engaged in any branch of trade, consider it a bitter subject of reproach if one year in their lives should pass away without in some degree increasing their capital. Hence the wealth of the Dutch and the rare occurrence of bankruptcies in Holland. The Dutch do not, however, subject themselves to such habitual hard manual labour as the English and Flemings. They traffic on the land and on the sea, and they make the force of the wind and of machinery, and the strength of horses, do most of their laborious and domestic work.

The example of the Dutch living in the canal or river boats illustrates their industry and thrift. A man marries—he and his wife possess or purchase a small boat that will carry from one to three tons. They live, cook, move about many articles to and from market; and their first, if not second child is born, or at least nursed, in the puny vessel. The wife nurses the children, mends and often makes all the family clothes, cooks, and assists in navigating the craft, especially in steering; when you may, at the same time, observe the husband with a rope over his shoulder dragging the boat along a canal or river, when the wind is adverse. In process of time they buy a large vessel, probable of six or seven tons, and if the smaller one be not unfit for use, sell it to a young beginning couple. In the second vessel the family grow up, until they are probably strong enough to manage, together with perhaps an additional hand or two, one of those large vessels carrying from two to four hundred tons, called "Rhine-boats," on board all of which the population live in the way already alluded to. In all Dutch operations, although the nature of different pursuits will not admit exactly of the same gradation, the spirit is the same, whether as merchants or as graziers; commanders of, or sailors in East India ships; skippers of [illegible]liots, or of herring-buses.

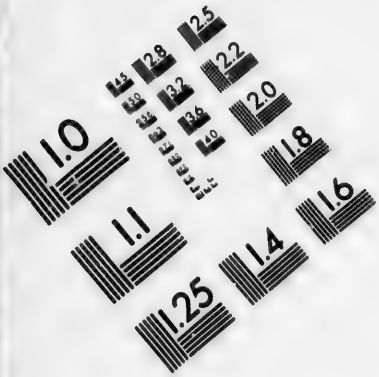
The Dutch, in their diet, are, certainly, frug[illegible], although it is maintained that all their good butter and cheese are exported, generally speaking their food is substantial; and their cooking and fare among the merchants and citizens, scarcely differ from b[illegible] in England. On board their merchant vessels the fare is certainly much less costly than in English ships.

They dress plainly, but now much in the English and French fashions, and the higher classes wear the finest English and Saxony cloths. The clothing of the labouring people is, except in some parts of North Holland, and the eastern provinces, assimilated in cut and form to that of the English. Formerly, when they had extensive manufactories of silk and fine woollens, they exported the whole, and imported coarse linens and woollens for domestic use. Of the spices of India, and the silks of China, few are consumed in Holland.

No people are better calculated for merchants. They make the most minute calculations, and enter with caution into speculations. Hence their certain, though generally slow success.

The vices of the Dutch chiefly consist in the lower classes drinking great quantities of gin, and the unceasing habit of smoking indulged in by the middle and upper ranks.

Funerals.—Funerals at Amsterdam, and at other large towns, are far from pompons. The *Anspraker*, a personage to be seen



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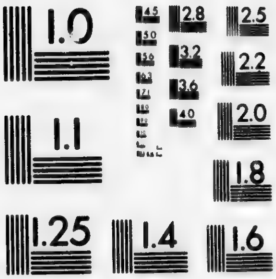

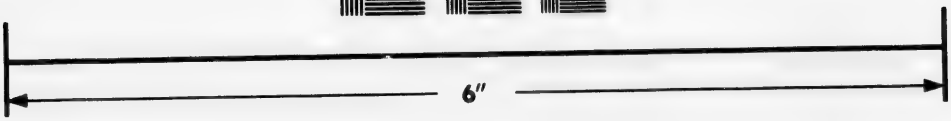

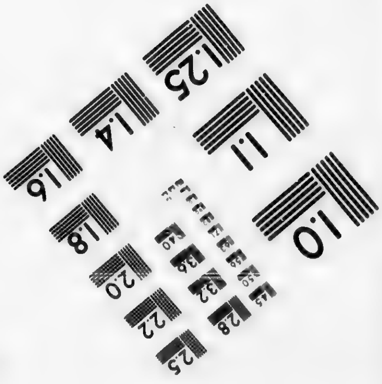

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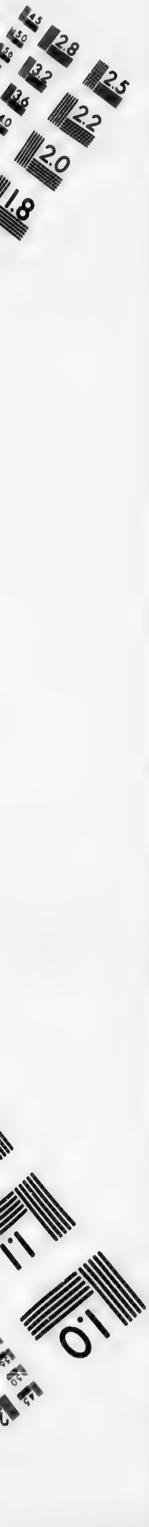

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in every street in Amsterdam, dressed in black, and with a pendant of the same colour suspended from his hat, announces the death of all who die, to their acquaintances; and the chief expense of the funeral consists of the sum, a kind of tax, charged for the interment, according to the lateness of the hour at which the relatives will have the funeral; after two o'clock the charge is 25 florins; at half-past two, 50 florins; at three, 200 florins, and so on. Among the lower ranks in town and country, all who can claim the slightest acquaintance with the deceased, follow the body to the grave; they then return to pay their respects to the widow, who provides liquor for them, and, after partaking of three or four glasses each, they all depart, except the relatives and friends of the family, who remain to revel. At this feast the nearest relative presides; bumpers are drunk to the repose and welfare of the deceased, and to the prosperity of the living, until all griefs are drowned in gin and beer. Songs decent, ludicrous, and vicious, succeed; music then strikes up, the widow leads off the dance, which, with boisterous amusements, are continued until the day dawns. In Overysell these festivities were carried to so extravagant a length that the authorities interfered, and strictly forbade them.

Education.—I have been particularly pleased in observing the care which the parents take to educate their children. In this respect the similarity to the Scotch custom and principle is striking; and the home instruction of the upper classes is admirable. Besides many celebrated Universities, there are numerous grammar schools, charity schools, and public elementary schools, by means of which the benefits of education extend to all classes, at little expense to those who can afford to pay, and none to those who are indigent.

National Character.—It is very easy to sneer at the Dutch for their plodding habits, their tobacco smoking, and their harmless mania for tulips, but reflect on what they have accomplished. They gather not wealth but by honourable means; and their numerous benevolent institutions, with their extreme disinterestedness in ameliorating the condition of their fellow-creatures, raise the population as high in the moral scale as the most benevolent and upright people in the world. By their hatred to tyranny and oppression, they furnished the first durable example free and religious liberty to the rest of Europe. To a country almost floating on the waters, and subjected to sudden inundations, they have given a firm foundation, and raised formidable barriers to the inroads of the latter. They have, without stone or timber in the country, built spacious cities and superb edifices, the foundations of which they have carried from afar. Without possessing at home a solitary material used in the construction of a ship, they have b[illegible] navies, that have swept the flags of their former tyrants from off the ocean, and disputed the seas with the most formidable fleets. Without arable land, their cities became granaries for supplying Europe; and with a small territory, and the people at all times subjected to heavy taxation, their army, their fleet, and their commerce, have enabled them to rank among the nations of Europe.

Abridged from McGregor's "My Note Book."

POMPEY'S PILLAR.

One of the most remarkable monuments of antiquity in Egypt is Pompey's Pillar. This remarkable object stands near the southern gate of Alexandria, a celebrated city of Lower Egypt, built by Alexander the Great, situated upon the shore of the Mediterranean. The Pillar is composed of red granite. The capital, which is Corinthian, is nine feet high. The shaft and the upper member of the base are of one piece, ninety feet long and nine in diameter. The base, a block of marble, sixty feet in circumference, rests on two layers of stone bound together with lead; which, however, has not prevented the Arabs from forcing out several of them, to search for an imaginary treasure. The whole column is one hundred and fourteen feet high. Nothing can equal the majesty of this monument: the beauty of the capital, the length of the shaft, and the extraordinary simplicity of the pedestal, excite the admiration of all travellers. The pedestal has been somewhat damaged by the instruments of travellers curious to possess a relic of antiquity; one of the volutes, or members of the column, was immaturely brought down a few years ago, by a prank of some English captains, which may be related as an instance of the address and fearlessness of British sailors.

A strange freak entered into the brains of these sons of Neptune to drink a bowl of punch on the top of Pompey's Pillar! To the spot accordingly they went; and many contrivances were proposed to accomplish the desired point. But their labour was in vain, until the genius who struck out the frolic happily suggested the means of performing it. A man was despatched to the city for a paper kite; and the inhabitants apprized of what was going forward, flocked in crowds to be witnesses of the address and boldness of the English. The kite was flown so directly over the pillar that when it fell on the other side, the string lodged upon the capital. A two-inch rope was tied to one end of the string, and drawn over the pillar by the end to which the kite was fixed. By this rope one of the seamen ascended to the top; and in less than an hour a kind of shroud was constructed, by which the whole company went up and drank their punch amid the shouts of the astonished multitude. To the eye below, the capital of the pillar does not appear capable of holding more than one man upon it; but our seamen found it could contain no less than eight persons very conveniently. It is astonishing that no accident befell these mad-caps, in a situation so elevated that it would have turned a lands-man giddy in his sober senses. The only detriment which the pillar received was the loss of the volute before mentioned, which came down with a thundering sound. The discovery which they made amply compensated for the mischief; as without their evidence, the world would not have known at this hour that there was originally a statue on this pillar, one foot and ankle of which are still remaining.

Scrap Book.

MOUNT VESUVIUS.

About six miles to the eastward of Naples, stands a volcano, or burning mountain, named Vesuvius. During the time of an eruption, which generally happens in the course of a few years, streams of liquid fire issue from the crater, or hollow summit of the mountain, and, descending down its sides, overwhelm and destroy the country through which they pass. Such a wonderful phenomenon attracts the notice of all strangers. Mr. Seymour, therefore, proposed an excursion to Vesuvius, which was highly approved of by the whole party. At the foot of the mountain, the road became so rugged and uneven, that they exchanged their carriages for mules; but even this accommodation was obliged to be given up, after they had ascended as far as the hermitage Il Salvatore, where they stopped for refreshment. Being desirous of seeing the volcano to the greatest advantage, they remained at the hermitage till the middle of the night, when they set out on foot attended by several guides. They passed over fields of lava, which is the substance that remains, when the liquid torrents of fire from the mountains become cold, and harden. The lava assumes a different appearance according to its age; that which has been long exposed to the air is black, and so hard, that tables and other things are made of it. They observed the remains of an eruption that had happened but a few weeks before, still smoking, which, though perfectly solid, were so hot as to be uncomfortable to their feet. As they approached the summit, vivid flashes of fire were seen issuing from the top, accompanied with a loud rumbling sound within the mountain. To these succeeded showers of red hot stones, which were thrown to a prodigious height, whence they fell on the declivities, bounding and rolling within a very small space of the place where they stood. But the most astonishing spectacle is a cataract of fire; the stream of red-hot liquid lava flowing over a high rock into a valley on one side of Salvatore, and continuing to flow a considerable space, after it had reached the ground, in the form of a river of fire, rendered still more brilliant by the darkness of the night. The ascent became at last so steep, that the guides fastened belts round their waists, that the company might assist themselves by laying hold on them. The party had now reached the mouth of the volcano, and placed themselves, by the directions of the guides, on that side of it whence the wind blew, that they might be secure from the dangerous consequences of the falling of the stones and combustible matter, which were driven by the wind in an opposite direction. Here they contemplated the scene before them with a mixture of awe and astonishment. A column of black smoke arose from the crater, which concealed the sides; vivid bursts of flame at intervals, mingled with the curling smoke, and cast a momentary glare of light upon the obscurity it occasioned. The solemnity of the rumbling sound, like thunder, that accompanied the flashes of fire, was interrupted by the rattling of the stones, that fell in showers red-hot and hissing on the ground. It was sometime before any of the company broke silence, so much were they affected by the solemnity of the objects around them; but they were at length naturally led to converse upon the nature and effect of these volcanoes. "Whatever," observed the Count, "may be the wise purposes for which they are ordained, their immediate effects are terrible to those who happen to be near them at the time of an eruption." An Italian gentleman, with whom I was intimate, gave me an account of that which happened in the year 1767. For some time before it began, the neighbourhood was alarmed by more violent rumblings and explosions within the mountain than usual. A mass of white smoke, resembling clouds of cotton, four times the size of the mountain itself, issued from the crater; from the midst of this white smoke, an immense quantity of stones and cinders were shot up, not less than two thousand feet high, and a quantity of lava boiled over the mouth of the mountain and flowed down its sides to the distance of nearly four miles, destroying every thing in its progress. After many loud explosions, a fountain of liquid transparent fire rose at least ten thousand feet high, and joining the stream that issued from the crater, formed one immense body of fire, that reflected heat six miles round.

Wakefield.

DESCRIPTION OF A FEAST GIVEN AT LOO CHOO TO SOME BRITISH OFFICERS, IN THE YEAR 1816.

At one o'clock we set out in the barge, with a large union-jack flying, and as it blew fresh, we soon reached the harbour. As we rowed past the shore, the people were seen running along all the roads leading to the town, so that, by the time we reached the harbour, the crowd on both sides was immense; the trees, walls, and house tops, and, in short, every spot from which we could be seen, were literally covered with people, forming a sight as striking and animated as can well be conceived. As we entered the harbour, several of the Chiefs were observed to come down to a point and wave to us to go round the end of a pier or mole, forming the same harbour, where there was a good landing place. The Chiefs helped us out, and then led us along, Ookooma taking Captain Maxwell's hand, Shayoon mine, and Jeema Mr. Clifford's; the others, according to their rank, conducted Mr. McLeod of the Alceste, Mr. Maxwell, and another midshipman, Mr. Browne. They held our hands nearly as high as the shoulder, while a lane was formed for us through a crowd of people, who were perfectly silent. The children were placed in front, and the next rank sat down, so that those behind could see us passing. At about 150 yards from the landing place, we came to the gate of a temple, where we were met by the Chief, who stood just outside of the threshold, on a small raised pavement. He took Ookooma's place, and conducted Captain Maxwell up a few steps into the Temple, which was partly open on two sides, with deep verandahs, which made the interior shady and cool. A large table, finely japanned, was spread, and two ornamented chairs placed for us. The Chief seated himself at one end of the table, and placed Captain Maxwell on his left. An entertainment was now served, beginning with a light kind of wine called *sackee*, which was handed round in very diminutive cups, filled from a small high pot, in which the *sackee* was kept hot. They insisted on our emptying the cup every time, shewing us a fair example themselves. During the whole feast, the *sackee* never left the table, being considered suitable to all the strange dishes which we partook of. The first of these consisted of hard boiled eggs cut into slices, the outside of the whole being coloured red. A pair of chop-sticks was now given to each person, and these were not changed during the feast. Next came fish fried in butter, which we found an excellent dish; then sliced smoked pork; next pig's liver sliced. After this, tea was handed round, in cups of moderate size; the tea was quite new, resembling, as was observed, an infusion of hay. Pipes and tobacco served to fill up the short interval between the courses. A man attended behind each of our chairs, whose sole business was to fill and light the pipes. The next dish was the strangest of any, and disgusted most of the party; it consisted of a mess of coarse, soft, black-sugar, wrapped up in unbaked dough, covered over with rice-flour dyed yellow. After this we had dishes of round cakes like gingerbread nuts; then cakes made in the form of wreaths, and in a variety of other shapes. There was something like cheese given us after the cakes, but we cannot form a probable conjecture of what it was made. Most of the dishes were [illegible] good that we soon made a hearty dinner, but the attendants still brought in more, till the Chief, seeing that we did not eat, recommended the *sackee* to us. The old gentleman's eyes at length began to glisten, and, observing that we felt it hot, he requested us to uncover, shewing us the example himself. He seized the doctor's cocked-hat and put it on, while the doctor did the same with his *hatchee-matchee.* The oddity of the Chief's appearance, produced by this change, overcame the gravity of the attendants, and the mirth became general; nor was the joke relished by any body more than the Chief's two sons, who stood by his chair during all the entertainment; they were pretty little boys with gaudy dresses, and their hair dressed in high showy top-knots. During all the time we were at table, the crowd pressed round the verandahs, and perched themselves upon the walls and house-tops in the vicinity, or wherever they could get a peep at us. The satisfaction here was mutual. After sitting two hours we rose, and were escorted to the boats in the same order as when we landed.

Hall.

ANCIENT AND PRESENT STATE OF THE HOLY LAND.

Palestine, whether viewed as the source of our religious faith, or as the most ancient fountain of our historical knowledge, has at all times been regarded with feelings of the deepest interest and curiosity. Inhabited for many ages by a people entitled above all others to the distinction of peculiar, it presents a record of events such as have not come to pass in any other land; monuments of belief denied to all other nations; hopes not elsewhere cherished, but which, nevertheless, are connected with the destiny of the whole human race, stretch forward to the consummation of all terrestrial things. Its scenes which no art can change, and hardly any description disguise, are standing and undeniable proofs of the truth and inspiration of that sacred volume, in which God has been pleased to reveal his will to fallen creatures. The hills still stand round about Jerusalem as they stood in the days of David and Solomon. The dews fall on Hermon; the cedars grow on Lebanon; and Kishon, that ancient river, draws its stream from Mount Tabor, as in the days of old. The sea of Galilee still presents the same natural embellishments in the surrounding scenery; the fig-tree springs up by the way side, the sycamore spreads its branches, and the vines and the olives still climb the sides of the mountains. The desolation which covered the cities of the plain, is not less striking at the present hour, than when Moses with an inspired pen recorded the judgment of God; the swellings of Jordan are not less regular in their rise than when the Hebrews first approached its banks; and he who goes down from Jerusalem to Jericho, still incurs the greatest hazard of falling among thieves. There is, in fact, in the scenery and manners of Palestine, a perpetuity that accords well with the everlasting import of its historical records, and which enables us to identify with the utmost readiness the local imagery of every great transaction.

The extent of this remarkable country has varied at different times, according to the nature of the government which it has ever enjoyed or been compelled to acknowledge. When it was first occupied by the Israelites, the land of Canaan, properly so called, was confined between the shores of the Mediterranean and the western bank of the Jordan; the breadth at no part exceeding fifty miles, while the length hardly amounted to three times that space. At a later period, the arms of David and of his immediate successor, carried the boundaries of the kingdom to the Euphrates and Orontes on the one hand, and in an opposite direction to the remotest confines of Edom and Moab. The population, as might be expected, has undergone a similar variation. Proceeding on the usual grounds of calculation, we may infer, from the number of warriors whom Moses conducted through the desert, that the Hebrew people, when they crossed the Jordan, did not fall short of two millions; while, from facts recorded in the book of Samuel, we may conclude with greater confidence, that the enrolment made, under the direction of Joab, must have returned a gross population of at least five millions and a half.

The present aspect of Palestine, under an administration where every thing decays and nothing is renewed, can afford no just criterion of the accuracy of such statements. Hasty observers have, indeed, pronounced that a hilly country, destitute of great rivers, could not, even under the most skilful management, supply food for so many mouths. But this rash conclusion has been vigorously combated by the most competent judges, who have taken pains to estimate the produce of a soil under the fertilizing influence of a sun which may be regarded as almost tropical, and of a well regulated irrigation, which the Syrians knew how to practise with the greatest success. Canaan, it must be admitted, could not be compared to Egypt in respect to corn. There is no Nile to scatter the riches of an inexhaustible fruitfulness over its valleys and plains. Still it is not without reason that Moses described it as a "good land, a land of brooks of water, of fountains, and depths, that spring out of valleys and hills; a land of wheat, and barley, and vines, and fig-trees, and pomegranates; a land of oil, olive, and honey; a land wherein thou shalt eat bread without scarceness, and shalt not lack any thing in it; a land whose stones are iron, and out of whose hills thou mayest dig brass."

The reports of the latest travellers confirm the accuracy of this picture drawn by the Divine Legislator. Near Jericho the wild olives continue to bear berries of a large size, which yield the finest oil. In places subjected to irrigation, the same field, after a crop of wheat in May, produces pulse in autumn. Several of the trees are continually bearing flowers and fruit at the same time, in all their stages. The mulberry, planted in straight rows in the open fields, is festooned by tendrils of the vine. If this vegetation seems to languish or become extinct during the extreme heats; if, in the mountains it is at all seasons detached and interrupted,—such exceptions to the general luxuriance are not to be ascribed simply to the general character of all hot climates, but also to the state of barbarism in which the great mass of the present population is immersed.

Even in our day, some remains are to be found of the walls which the ancient cultivators built to support the soil on the declivities of the mountains; the forms of the cisterns in which they collected the rain-water; and traces of the canals by which this water was distributed over the fields. These labours necessarily created a prodigious fertility under an ardent sun, where a little moisture was the only thing requisite to revive the vegetable world. The case is exactly the same in the Archipelago; a tract, from which, in these days, a hundred individuals can hardly draw a scanty subsistence, formerly maintained thousands in affluence. Moses might justly say that Canaan abounded in milk and honey. The flocks of the Arabs still find in it luxuriant pasture, while bees deposit in the holes of the rocks their delicious stores, which are sometimes seen flowing down the surface.

But it has never been denied that there is a remarkable difference between the two sides of the ridge which forms the central chain of Judea. On the western acclivity the soil rises from the sea towards the elevated ground, in four distinct terraces, which are covered with unfading verdure. On the eastern side, however, the scanty coating of mould yields a less magnificent crop. From the summit of the hills a desert stretches along to the Lake Asphaltites, presenting nothing but stones and ashes, and a few thorny shrubs. The sides of the mountain enlarge, and assume an aspect at once more grand and more barren. By little and little the scanty vegetation dies; even mosses disappear, and a red burning hue succeeds to the whiteness of the rocks. In the centre of this amphitheatre there is an arid basin inclosed on all sides with summits scattered over with a yellow coloured pebble, and affording a singular aperture to the east, through which the surface of the Dead Sea and the distant hills of Arabia, present themselves to the eye. In the midst of this country of stones, encircled by a wall, we perceive, on the one side, extensive ruins, stunted cypresses, and bushes of the aloe and prickly pear; while on the other, there are huddled together a number of heavy square masses, very low, without chimneys or windows, and more like prisons or sepulchres than houses, which, with their flat roofs, would appear one uninterrupted level to the eye, were the uniformity of the plan not broken by the steeples of the churches, and minarets of the mosques. This spot is Jerusalem.

Abridged from Palestine—Cabinet Library.

PETRA.

The City of Petra, celebrated by the Greeks as a very remarkable and strong City of Idumea, and whose ruins are still the wonder of travellers, is generally understood to be the place known more anciently by the Hebrew name, Selah, or Rock, which indeed the Greek name, Petra, also signifies. The following interesting description of this place, is given by a recent traveller:

Petra, the excavated city, the long-lost capital of Edom, in the Scriptures and profane writings, in every language in which its name occurs, signifies a rock; and, through the shadows of its early history, we learn, that its inhabitants lived in clefts or excavations made in the solid rock. Desolate as it now is, we have reason to believe that it goes back to the time of Esau, "The father of Edom;" that princes and dukes, eight successive kings, and again a long line of dukes, "dwelt there before any king reigned over Israel;" and we recognise it from the earliest ages, as the central point to which came the caravans from the interior of Arabia, Persia, and India, laden with all the precious commodities of the East, and from which these commodities were distributed through Egypt, Palestine, and Syria, and all the countries bordering on the Mediterranean, even Tyre and Sidon deriving their purple dyes from Petra. Eight hundred years before Christ, Amaziah, the king of Judea "slew of Edom, in the valley of Salt ten thousand, and took Selah by war." Three hundred years after the last of the prophets, and nearly a century before the Christian era, the "king of Arabia" issued from his palace at Petra, at the head of fifty thousand men, horse and foot, entered Jerusalem, and uniting with the Jews, pressed the siege of the temple, which was only raised by the advance of the Romans; and in the beginning of the second century, though its independence was lost, Petra was still the capital of a Roman Province. After that time it rapidly declined; its history became obscure; for more than a thousand years it was lost to the civilised world; and until its discovery by Burckhardt, in 1812, except to the wandering Bedouins, its very site was unknown.

This ancient and extraordinary city is situated within a natural amphitheatre of two or three miles in circumference, encompassed on all sides by rugged mountains, five or six hundred feet in height. The whole of this area is now a waste of ruins—dwelling houses, palaces, temples, and triumphal arches, all prostrate together in undistinguishable confusion. The sides of the mountains are cut smooth, in a perpendicular direction, and filled with long and continued ranges of dwelling houses, temples, and tombs, excavated with vast labour out of the solid rock; and while their summits present Nature in her wildest and most savage form, their bases are adorned with all the beauty of architecture and art, with columns, and porticos, and pediments, and ranges of corridors, enduring as the mountains out of which they are hewn, and fresh as the work of a generation scarcely yet gone by.

Nothing can be finer than the immense rocky rampart which encloses the city. Strong, firm, and immoveable as nature itself, it seems to deride the walls of cities, and the puny fortifications of skilful engineers. The only access is by clambering over this wall of stone, practicable only in one place, or by an entrance the most extraordinary that Nature, in her wildest freaks, has ever framed. The loftiest portals ever raised by the hands of man, the proudest monuments of architectural skill and daring, sink into insignificance by the comparison. * * * *

For about two miles the passage lies between high and precipitous ranges of rocks, from five hundred to one thousand feet in height, standing as if torn asunder by some great convulsion, and barely wide enough for two horsemen to pass abreast. A swelling stream rushes between them; the summits are wild and broken; in some places overhanging the opposite sides, casting the darkness of night upon the narrow defile; then receding and forming an opening above, through which a strong ray of light is thrown down and illuminates with the blaze of day the frightful chasm below. Wild fig-trees, oleanders, and ivy, were growing out of the rocky sides of the cliffs hundreds of feet above our heads; the eagle was screaming above us; all along were the open doors of tombs, forming the great Necropolis of the city; and at the extreme end was a large open space, with a powerful body of light thrown down upon it, and exhibiting in one full view the front of a beautiful temple, hewn out of the rock, with rows of Corinthian columns and ornaments, standing out fresh and clear, as if but yesterday from the hands of the sculptor. Though coming directly from the banks of the Nile, where the preservation of the temples excites the admiration and astonishment of every traveller, we were roused and excited by the extraordinary beauty and excellent condition of the great temple at Petra. The whole temple, its columns, ornaments, porticos, and porches, are cut from, and form part of the solid rock; and this rock, at the foot of which the temple stands like a mere print, towers several hundred feet above, its face cut smooth to the very summit, and the top remaining wild and mis-shapen as Nature made it. The whole area before the temple is perhaps an acre in extent, enclosed on all sides except a narrow entrance, and an opening to the left of the temple, which leads into the area of the city by a pass through perpendicular rocks five or six hundred feet in height. The outside of the temple is richly ornamented, but the interior is perfectly plain, there being no ornament of any kind upon the walls or ceiling; on each of the three sides is a small chamber for the reception of the dead. Leaving the temple and the open area on which it fronts, and following the stream, we entered another defile much broader than the first, on each side of which were ranges of tombs, with sculptured doors and columns; and on the left, in the bosom of the mountain, hewn out of the solid rock, is a large theatre, circular in form, the pillars in front fallen, and containing thirty-three rows of seats capable of containing more than three thousand persons. The whole of the theatre is at this day in such a state of preservation, that if the tenants of the tombs around could once more rise into life, they might take their places on its seats and listen to the declamation of their favourite player. Day after day these seats had been filled, and the now silent rocks had echoed to the applauding shouts of thousands; and little could an ancient Edomite imagine that a solitary stranger, from a then unknown world, would one day, be wandering among the ruins of his proud and wonderful city, meditating upon the fate of a race that has for ages passed away.

All around the theatre, in the sides of the mountains, were ranges of tombs; and directly opposite they rose in long tiers one above another. In some cases it was impossible to distinguish the habitations of the living from the chambers of the dead, but this was not invariably the case; some were clearly tombs, for there were pits in which the dead had been laid, and others were as clearly dwellings, being without a place for the depositing of the dead. One of these last particularly attracted my attention. It consisted of one large chamber, having on one side, at the foot of the wall, a stone bench about one foot high and two or three broad, in form like the divans of the East at the present day; at the other end were several small apartments which had probably been the sleeping-rooms of the different members of the family. There were no paintings or decorations of any kind within the chamber; but the rock out of which it was hewn, like the whole stoney rampart that encircled the city, was of a peculiarity and beauty that I never saw elsewhere; being a dark ground, with veins of white, blue, red, purple, and sometimes scarlet and light orange running through it in rainbow streaks; and within the chambers, where there had been no exposure to the action of the elements, the freshness and beauty of the colours in which these waving lines were drawn, gave an effect hardly inferior to that of the paintings in the tombs of the kings at Thebes. From its high and commanding position, and the unusual finish of the work, this house, if so it may be called, had no doubt been the residence of one who strutted his hour of brief existence among the wealthy citizens of Petra.

But it would be unprofitable to dwell upon details. In the exceeding interest of the scene around me, I hurried from place to place; I clambered up broken stair-cases, and among the ruins of streets; and, looking into one excavation, passed on to another and another, and made the whole circle of the desolate city. * *

Where are ye, inhabitants of this desolate city? ye who once sat in the seats of this theatre, the young, the high-born, the beautiful and brave; who once rejoiced in your riches and power, and lived as if there was no grave? Where are ye now? Even the very tombs, whose open doors are stretching away in long ranges before the eyes of the wondering traveller, cannot reveal the mystery of your doom: your dry bones are gone; the robber has invaded your graves, and your very ashes have been swept away to make room for the wandering Arab of the desert. But in the earliest period of recorded time, long before this theatre was built, a great city stood here. For, when Israel prayed for a passage through her country, Edom, in her haughty pride, said unto Israel: "Thou shalt not pass by me, lest I come out against thee with the sword."

Amid all the terrible denunciations against the land of Idumea, "her cities and the inhabitants thereof," this proud city among the rocks, doubtless for its extraordinary sins, was always marked as a subject of extraordinary vengeance.

"I have sworn by myself, saith the Lord, that Bozrah (the strong or fortified city) shall become a desolation, a reproach, and a waste, and a curse. Lo I will make thee small among the heathen, and despised among men. Thy terribleness hath deceived thee, and the pride of thy heart, oh, thou that dwellest in the clefts of the rocks, that holdest the height of the hill; though thou shouldest make thy nest high as the eagle, I will bring thee down from thence saith the Lord." *Jer.* xlix. 13. 16.

I would that the sceptic could stand, as I did, among the ruins of this city, among the rocks, and there open the sacred book, and read the words of the inspired penman, written when this desolate place was one of the greatest cities in the world. I see the scoff arrested, his cheek pale, his lip quivering, and his heart quaking with fear, as the ruined city cries out to him in a voice loud and powerful as that of one risen from the dead; though he would not believe Moses and the prophets, he believes the handwriting of God himself, in the desolation and eternal ruin around him. We sat on the steps of the theatre, and made our noon-day meal; and our drink was from the pure stream that rolled down at our feet.

Stephen's Travels—Abridged.

ORIENTAL MARRIAGE PROCESSIONS.

It is a fact worthy of notice, that the *Manners and Customs of the East* remain unchanged with the rolling movements of ages—they alter not with the course of time. Among the best preserved of these customs, that of the marriage ceremony may be considered the most remarkable; and though in detail the nuptial rites vary among different people, and even among portions of the same people, yet in their general features they are similar.

A procession is usual on all occasions of marriage, either to or from the house of the bridegroom or bride (sometimes both,) which procession always takes place at night, by torch-light. This custom so prevalent, nay, quite universal among the Jews about the commencement of the Christian era, was also a distinguished feature of the marriage ceremony among the early Greeks, according to Homer. In Cowper's translation of the Iliad, we find the following:

"Rites matrimonial solemnized with pomp
Of sumptuous banquets. Forth they led their brides
Each from her chamber, and along the streets
With torches ushered them, and with the voice
Of hymeneal song, heard all around.
Here striplings danced in circles to the sound
Of pipe and harp, while in the portals stood
Women, admiring all the gallant show."

If we compare the parable of the foolish virgins, with the existing marriage ceremonies of the inhabitants of Hindostan, we shall perceive a striking resemblance. Ward, in his "Views of the Hindoos," gives the following account of the arrival of a bridegroom to take the bride: "At a marriage, the procession of which I saw some years ago, the bridegroom came from a distance, and the bride lived at Serampore, to which place the bridegroom was to come by water. After waiting two hours, at length, near midnight, it was announced, as if in the very words of Scripture, "Behold the bridegroom cometh, go ye out to meet him." All the persons employed (probably women) now lighted their lamps, and ran with them in their hands to fill up their stations in the procession; some had lost their lamps and were unprovided, but it was then too late to seek them, and the cavalcade moved forward to the house of the bride, at which place the company entered a large and splendidly illuminated area before the house of the bride, covered with an awning, where a great multitude of friends, dressed in their best apparel, were seated upon mats. The bridegroom was carried in the arms of a friend, and placed upon a superb seat in the midst of the company, where he sat a short time, and then went into the house, the door of which was immediately shut, and guarded by *sepoys*. I and others expostulated with the door-keepers, but in vain. Never was I so struck with our Lord's beautiful parable as at this moment: "And the door was shut." I was exceedingly anxious to be present while the marriage formulas were repeated; but was obliged to depart in disappointment. Returning after marriage to the house of the bridegroom, the latter is commonly carried alone in a palanquin, preceding the bride in a similar conveyance. This, among the Hindoos, is as common as for them both to be carried in the same vehicle. Each attendant is always supplied with a staff, on which is affixed a torch, and thus, with songs and dances, the splendid procession moves on.

As before observed, the details of marriage processions are often dissimilar, though in general features they are alike. In Syria, Persia, and India, the bridegroom in person brings home the bride, but the Turks usually leave this duty to be performed by a near relative, and remain at home to receive the lady. The Jews, in ancient times, had both these usages. In Egypt, the bridegroom goes to the mosque when the bride is expected, and returns home with her in the procession. When the distance is not great, these processions in Western Asia, are usually performed on foot, although horses, mules, and asses, are sometimes rode upon. When the procession moves on foot, the bride walks under a canopy, carried by two attendants; but in Eastern Asia, let the distance be what it may, the bride rides upon a mare, mule, ass or camel. When the bridegroom brings home the bride, the former, with the friends, moves in front, with often an interval between the two parties. Music is almost universal at such processions, such as the pipe and tambourine, accompanied with songs and dances.

Compiled.

TURKEY.

The palace of the Grand Seignior, or Turkish emperor, is called the seraglio, and resembles a small town, being three miles in circumference. It not only contains apartments for himself and wives (of whom he has a great many), but likewise for many of the great officers of state. We are told that there are nine large square courts within it, and a vast number of magnificent apartments and banqueting houses, which are placed in the most agreeable situations. The room where the Count was first admitted to an audience, stood in a court adorned with beautiful fountains; the floor was covered with rich carpets, and the furniture, crimson velvet embroidered with pearls. The gardens belonging to the seraglio are as fine as you can imagine, abounding with all sorts of fruit trees, and flowers growing up the sides of delightful walks, ornamented with marble fountains. The whole is charmingly situate on one of the seven hills, on which Constantinople stands, and the domes and turrets are adorned with gilded crescents. The principal entrance is through a magnificent gate, on one side of which is a pyramid of skulls, with labels fastened to each of them, expressing the crime for which their owners were put to death:—a dreadful sight! which I would not suffer so near my palace gate, were I Grand Seignior! but the government here is so arbitrary, that the cutting off a man's head is such a common occurrence, that it draws no attention. The grand vizier, and other officers of the highest rank, are frequently deprived of their offices and strangled, without exciting much stir. The magnificence of the Ottoman court can scarcely be exceeded, especially in every thing belonging to the Grand Seignior; his bed chamber is lined with the finest China ware, and the floor spread with carpets of silk and gold, the posts of the bed are of silver, and the canopy, bolsters, mattresses, and counterpanes, are all made of cloth of gold. His attendants are extremely numerous; many thousands of them reside in the seraglio. Those officers who preside at the stables and the gardens, are of very high rank. Besides guards, servants, and attendants on the sultans, there are buffoons, tumblers, musicians, wrestlers, and mutes; the latter are often permitted to amuse the Grand Seignior, by holding a conversation with him by nods and signs; an art, in which they are very expert, though born deaf and dumb. The dress of the Turkish ladies is very elegant; those we have seen wore a head-dress composed of many handkerchiefs of various colours, embroidered with gold and silver, spangled with all manner of precious stones, and set off with flowers. Their vests are generally white, edged at the bottom with gold lace and fringes, or lined with valuable furs, according to the season. Strings of the largest pearls adorn their necks, and their whole dress displays a profusion of jewels. The men wear a sort of long gown made of satin, taffeta or other fine stuff, girt about the waist with a sash, or leather belt, fastened with gold or silver buckles. At their girdle they commonly carry two daggers, with highly ornamented handles, and a pouch for tobacco. Over the silk close-bodied gown, they put another formed like a night-gown, lined with fur in winter. Their stockings are of cloth, with feet sewed to them of red or yellow leather; their shoes are of the same colour, shaped like slippers. They cover their heads with a crimson velvet cap, about which they twist a white or red turban many ells long.

The descendants of Mahomet are distinguished by green turbans;

and Greeks, Armenians, and Jews, by the colour of their drawers and slippers. The Turks shave their heads, but are proud of a long beard, and whiskers on the upper lip. When two friends meet, they lay their hands upon their breasts, bow gently, and say, "Peace be with you." Instead of sitting at a table to dine, they place the dishes on a carpet of Turkey leather, and sit cross-legged round it on the floor, eating *pilau*, (that is, meat and rice stewed together,) with wooden spoons. They drink coffee at all hours of the day, and esteem it a remedy for most disorders. Amongst their favourite diversions are smoking, and playing on a kind of lute; sometimes they amuse themselves at chess, draughts, and other games; but they never play for money, or anything of value.

Wakefield.

DERIVATIVES OCCURRING IN SECTION IV.

Root and Meaning.	Derivatives and Meaning.
Cano, I sing, cantus, song	Ac*cent*, a modification of voice
Caro, carnis, flesh	*Carn*ation, a flower, a pink
Cella, a cellar	*Cell*, a little hollow place
Claudo or cludo, I close, clausus or clusus, closed	Se*clude*, to shut up apart
Cubo, or cumbo, I lie down	In*cumb*er, to embarrass, to hinder
Finis, end or limit	Con*fines*, common boundary
Jus, juris, right	Ab*jure*, to swear not to do, to recant
Konos, a cone	*Cone*, a solid body the base of which is a circle and which ends in a point
Mano, to run or trickle down	E*man*ation, that which issues from another substance
Planeta, a celestial body	*Planet*, wandering bodies which move round and receive light from the sun
Radius, a ray	*Radi*ant, shining
Servo, I preserve	*Serv*ile, slavish, mean
Thema, a thing put; thesis, a position	Anti*thesis*, opposition
Torqueo, I twist, tortus, twisted	Dis*tort*, to twist out of form
Ver, the spring time	*Ver*nal, belonging to spring

SECTION IV.

ADDITIONAL POETRY.

ASPIRATIONS OF YOUTH.

Higher, higher will we climb
Up the mount of glory,
That our names may live through time
In our country's story;
Happy when her welfare calls,
He who conquers, he who falls.

Deeper, deeper let us toil
In the mines of knowledge;
Nature's wealth, and Learning's spoil
Win from school and college;
Delve we there for richer gems
Than the stars of diadems.

Onward, onward may we press
Through the path of duty;
Virtue is true happiness,
Excellence true beauty;
Minds are of celestial birth,
Make we then a heaven of earth.

Closer, closer let us knit
Hearts and hands together,
Where our fire-side comforts sit
In the wildest weather;—
O, they wander wide, who roam
For the joys of life from home.

Montgomery.

THE ORPHAN CHILD.

Upon my father's new-closed grave
  Deep lay the winter's snow;
Green now the grass waves o'er his head,
  And tall the tomb-weeds grow.

Along life's road no parent's hand
  My homeless footsteps led;
No mother's arm in sickness soothed,
  And raised my throbbing head.

But other hearts, Lord, thou hast warmed
  With tenderness benign;
And, in the stranger's eyes, I mark
  The tear of pity shine.

The stranger's hand by thee is moved
  To be the orphan's stay;
And better far, the stranger's voice
  Hath taught me how to pray.

Thou putt'st a new song in our mouths,
  A song of praise and joy;
O may we not our lips alone,
  But hearts, in praise employ!

To Him, who little children took,
  And in his bosom held,
And blessing them with looks of love,
  Their rising fears dispelled:—

To Him, while flowers bloom on the bank,
  Or lambs sport on the lea;
While larks with morning hymns ascend,
  Or birds chaunt on the tree:—

To Him, let every creature join
  In prayer, and thanks, and praise:
Infants, their little anthems lisp;
  Age, hallelujahs raise! **Grahame.**

HOME.

There is a land, of every land the pride,
Beloved by Heaven, o'er all the earth beside;
Where brighter suns dispense serener light,
And milder moons emparadise the night;
A land of beauty, virtue, valour, truth,
Time-tutored age, and lone-exalted youth;
The wandering mariner, whose eye explores
The wealthiest isles, the most enchanting shores,
Views not a realm so bountiful and fair,
Nor breathes the spirit of a purer air;
In every clime the magnet of his soul,
Touched by remembrance, trembles to that pole;
For in this land of Heaven's peculiar grace,
The heritage of nature's noblest race,
There is a spot of earth supremely blest,
A dearer, sweeter spot than all the rest,
Where man, creation's tyrant, casts aside
His sword and sceptre, pageantry and pride,
While in his softened looks benignly blend
The sire, the son, the husband, brother, friend;
Here woman reigns; the mother, daughter, wife,
Strew with fresh flowers the narrow way of life!
In the clear heaven of her delightful eye,
An angel-guard of loves and graces lie;
Around her knees domestic duties meet,
And fire-side pleasures gambol at her feet.
Where shall that land, that spot of earth be found?
Art thou a man?—a patriot?—look around!
O, thou shalt find, howe'er thy footsteps roam,
That land *thy* country, and that spot *thy* Home.

O'er China's garden-fields and peopled floods,
In California's pathless world of woods;
Round Andes' heights, where winter from his throne
Looks down in scorn upon the summer zone;

By the gay borders of Bermuda's isles,
Where Spring with everlasting verdure smiles;
On pure Madeira's vine-robed hills of health;
In Java's swamps of pestilence and wealth;
Where Babel stood, where wolves and jackals drink
'Midst creeping willows on Euphrates' brink;
On Carmel's crest; by Jordan's reverend stream,
Where Canaan's glories vanished like a dream;
Where Greece, a spectre, haunts her heroes' grave,
And Rome's vast ruins darken Tiber's waves;
When broken-hearted Switzerland bewails
Her subject mountains and dishonoured vales;
When Albion's rocks exult amidst the sea,
Around the beauteous isle of Liberty;
Man, through all ages of revolving time,
Unchanging man in every varying clime,
Deems his own land of every land the pride,
Beloved by Heaven o'er all the world beside;
His Home the spot of earth supremely blest,
A dearer, sweeter spot than all the rest.

Montgomery.

TRUE HAPPINESS NOT LOCAL.

True happiness has no localities;
No tones provincial, no peculiar garb;
Where duty goes, *she* goes; with justice goes;
And goes with meekness, charity, and love,
Where'er a tear is dried; a wounded heart
Bound up; a bruised spirit with the dew
Of sympathy anointed; or a pang
Of honest suffering soothed; or injury
Repeated oft, as oft by love forgiven;
Where'er an evil passion is subdued,
Or Virtue's feeble embers found; where'er
A sin is heartily abjured and left—
There is a high and holy place, a spot

Of sacred light, a most religious fane,
Where happiness descending, sits and smiles.

Pollok.

THE HOUR OF DEATH.

Leaves have their time to fall,
And flowers to wither at the North-wind's breath,
And stars to set—but all,
Thou hast *all* seasons for thy own, O Death!
Day is for mortal care,
Even for glad meetings round the joyous hearth,
Night for the dreams of sleep, the voice of prayer;
But all for thee thou Mightiest of the earth.

We know when moons shall wane,
When summer-birds from far shall cross the seas,
When autumn's hue shall tinge the golden grain;
But who shall teach us when to look for thee?
Is it when spring's first gale
Comes forth to whisper whence the violets lie?
Is it when roses in our paths grow pale?
They have *one* season—*all* are ours to die!

Thou art where billows foam;
Thou art where music melts upon the air;
Thou art around us in our peaceful home;
And the world calls us forth—and thou art there;
Thou art where friend meets friend,
Beneath the shadow of the elm to rest;
Thou art where foe meets foe, and trumpets rend
The skies, and swords beat down the princely crest!

Mrs. Hemans.

THE BURIAL OF SIR JOHN MOORE.

Not a drum was heard, not a funeral note,
As his corpse to the rampart we hurried;
Not a soldier discharged his farewell shot
O'er the grave where our hero we buried.

We buried him darkly at dead of night,
The sods with our bayonets turning;
By the struggling moonbeam's misty light
And the lantern dimly burning.

No useless coffin enclosed his breast,
Not in sheet nor in shroud we bound him;
But he lay like a warrior taking his rest,
With his martial cloak around him.

Few and short were the prayers we said,
And we spoke not a word of sorrow;
But we steadfastly gazed on the face of the dead,
And we bitterly thought of the morrow.

We thought, as we hollowed his narrow bed,
And smoothed down his lonely pillow,
That the foe and the stranger would tread o'er his head,
And we far away on the billow!

Lightly they'll talk of the spirit that's gone,
And o'er his cold ashes upbraid him,—
But little he'll reck, if they let him sleep on
In the grave where a Briton has laid him.

But half of our heavy task was done,
When the clock struck the hour for retiring;
And we heard the distant and random gun
That the foe was sullenly firing.

Slowly and sadly we laid him down,
From the field of his fame fresh and gory;
We carved not a line, and we raised not a stone—
But we left him alone with his glory.

Rev. C. Wolfe.

THE PLUM CAKES.

A Farmer who some wealth possest,
With three fine boys was also blest;
The lads were healthy, stout, and young

And neither wanted sense nor tongue;
Tom, Will, and Jack, like other boys,
Loved tops and marbles, sport and toys.
The father scouted that false plan,
That money only makes the man;
And to the best of his discerning,
Was bent on giving them good learning
He was a man of observation;
No scholar, yet had penetration;
So with due care a school he sought,
Where his young ones might well be taught.
Quoth he, "I know not which rehearses
Most properly his themes and verses;
Yet I can do a father's part,
And school the temper, mind, and heart;
The natural bent of each I'll know,
And trifles best that bent may show."

'Twas just before the closing year,
When Christmas holidays were near,
The farmer called to see his boys,
And asked how each his time employs.
Quoth Will, "There's father, boys, without;
He's brought us something good no doubt."
The father sees their merry faces;
With joy beholds them and embraces;
Then from his pocket straight he takes
A vast profusion of plum cakes;
He counts them out a plenteous store;
No boy shall have, or less or more;
Twelve cakes he gives to each dear son,
When each expected only one:
And then with many a kind expression,
He leaves them to their own discretion;
Resolved to mark the use each made
Of what he to their hands conveyed,

The twelve days passed, he came once more,
And brings the horses to the door,
The boys with rapture see appear
The poney and the dappled mare.
Each moment now an hour they count,
And slashed their whips and longed to mount,
As with the boys his ride he takes,
He asks the history of the cakes.

Says Will, " Dear father, life is short,
So I resolved to make quick sport;
The cakes were all so nice and sweet,
I thought I'd have one jolly treat.
Why should I baulk, said I, my taste?
I'll make at once a hearty feast,
So snugly by myself I fed,
When every boy was gone to bed;
I gorged them all, both paste and plum,
And did not waste a single crumb.
Howe'er, they made me, to my sorrow,
As sick as death upon the morrow;
This made me mourn my rich repast,
And wish I had not fed so fast."

Quoth Jack, " I was not such a dunce,
To eat my quantum up at once;
And though the boys all longed to clutch them,
I would not let a creature touch them;
Nor, though the whole were in my power,
Would I myself one cake devour;
Thanks for the use of keys and locks,
They're all now safe within my box.
The mischief is, by hoarding long,
They're grown so mouldy and so strong,
I find they wont be fit to eat;
And so I've lost my father's treat."

"Well Tom," the anxious parent cries,
"How did *you* manage?" Tom replies,
"I shunned each wide extreme to take,
To glut my maw or hoard my cake;
I thought each day its wants would have,
And appetite again might crave,'
Twelve school-days still my notches counted,
To twelve my father's cakes amounted:
So every day I took out one,
But never ate my cake alone;
With every needy boy I shared,
And more than half I always spared.
One every day, 'twixt self and friend,
Has brought my dozen to an end.
My last remaining cake to-day,
I would not touch but gave away;
To him it proved a welcome treat.
Jack called me spendthrift, not to save;
Will dubbed me fool, because I gave;
But when our last day came, I smiled,
For Will's were gone, and Jack's were spoiled;
Not hoarding much, nor eating fast,
I served a needy friend at last."

H. More.

CHRIST'S SECOND COMING.

The Lord shall come! The earth shall quake,
The mountains to their centre shake,
And, withering from the vault of night,
The stars shall pale their feeble sight.
The Lord shall come! a dreadful form,
With rainbow-wreath and robes of storm;
On cherub wings, and wings of wind,
Appointed Judge of all mankind.

Can this be he who wont to stray
A pilgrim on the world's highway,

Oppressed by power, and mocked by pride,
The Nazarene—the crucified ?
While sinners in despair shall call,
" Rocks, hide us ; mountains, on us fall !"
The saints ascending from the tomb,
Shall joyful sing " The Lord is come !"

Heber.

THE EVENING CLOUD.

A cloud lay cradled near the setting sun,
A gleam of crimson tinged its braided snow ;
Long had I watched the glory moving on
O'er the still radiance of the lake below.

Tranquil its spirit seem'd, and floated slow !
Even in its very motion there was rest ;
While every breath of eve that chanced to blow,
Wafted the traveller to the beauteous west.

Emblem, methought, of the departed soul !
To whose white robe the gleam of bliss is given ;
And by the breath of mercy made to roll
Right onward to the golden gates of heaven,
Where, to the eye of Faith, it peaceful lies,
And tells to man his glorious destinies.

Wilson.

THE IDLE BOY.

Young Thomas was an idle lad,
And lounged about all day ;
And though he many a lesson had,
He minded nought but play.

He only cared for top and ball,
Or marbles, hoop and kite,
But as for learning, that was all
Neglected by him quite.

In vain his mother's kind advice,
In vain his father's care ;

He followed every idle vice,
  And learnt to curse and swear.

And think you, when he grew a man,
  He prospered in his ways?
No—wicked courses never can
  Bring good and happy days.

Without a shilling in his purse,
  Or coat to call his own,
Poor Thomas grew from bad to worse,
  And hardened as a stone.

And Oh! it grieves me much to write
  His melancholy end;
Then let us leave the dreadful sight,
  And thoughts of pity send.

But may we this important truth
  Observe and ever hold,
"That most who're idle in their youth,
  Are wicked when they're old."

Anon.

THE ORPHAN BOY.

Stay, lady—stay, for mercy's sake,
  And hear a helpless orphan's tale!
Ah! sure my looks must pity wake—
  'Tis *want* that makes my cheek so pale.

Yet I was once a mother's pride,
  And my brave father's hope and joy;
But in the Nile's proud fight he died—
  And I am now an orphan boy!

Poor foolish child, how pleased was I,
  When news of Nelson's victory came,
Along the crowded streets to fly,
  To see the lighted windows flame!

To force me home my mother sought—
  She could not bear to see my joy;
For with my father's life 'twas bought—
  And made me a poor orphan boy.

The people's shouts were long and loud,
  My mother shuddering closed her ears;
"Rejoice! rejoice!" still cried the crowd—
  My mother answered with her tears.

"Oh! why do tears steal down your cheek,"
  Cried I, "while other's shout for joy?"
She kissed me; and in accents weak,
  She called me her poor orphan boy!

"What is an orphan boy?" I said;
  When suddenly she gasped for breath,
And her eyes closed! I shrieked for aid:—
  But, ah! her eyes were closed in death!

My hardships since, I will not tell;
  But now no more a parent's joy;
Ah! lady, I have learnt too well
  What 'tis to be an orphan boy!

Oh! were I by your bounty fed!
  Nay, gentle lady, do not chide;
Trust me, I mean to *earn* my bread—
  The sailor's orphan boy has pride.

"Lady, you weep:—what is't you say?
  You'll give me clothing, food, employ!
Look down, dear parents! look and see
  Your happy, happy orphan boy.

Opie.

THE TREASURES OF THE DEEP.

What hidest thou in thy treasure-caves and cells,
  Thou hollow-sounding and mysterious Main;

Opie.

Pale glistening pearls, and rainbow-coloured shells,
  Bright things which gleam unreck'd of, and in vain.
Keep, keep thy riches, melancholy Sea!
    We ask not such from thee.

Yet more, the Depths have more! What wealth untold,
  Far down, and shining through their stillness lies!
Thou hast the starry gems, the burning gold,
  Won from ten thousand royal Argosies.
Sweep o'er thy spoils, thou wild and wrathful Main!
    Earth claims not these again!

Yet more, the Depths have more! Thy waves have rolled
  Above the cities of a world gone by!
Sand hath filled up the palaces of old,
  Sea-weed o'ergrown the halls of revelry!
Dash o'er them, Ocean! in thy scornful play—
    Man yields them to decay!

Yet more! the Billows and the Depths have more!
  High hearts and brave are gathered to thy breast!
They hear not now the booming waters roar,
  The battle-thunders will not break their rest,
Keep thy red gold and gems, thou stormy grave—
    Give back the true and brave!

Give back the lost and lovely! those for whom
  The place was kept at board and hearth so long,
The prayer went up through midnight's breathless gloom,
  And the vain yearning woke 'midst festal song!
Hold fast thy buried isles, thy towers o'erthrown,—
    But all is not thine own!

To thee the love of woman hath gone down,
  Dark flow thy tides o'er manhood's noble head,
O'er youth's bright locks and beauty's flowery crown;
  Yet must thou hear a voice—Restore the Dead!
Earth shall reclaim her precious things from thee—
    Restore the Dead, thou Sea!

Mrs. Hemans.

A MOTHER TO HER WAKING INFANT.

Now in thy dazzling, half-oped eye,
Thy curled nose, and lip awry,
Thy up-hoist arms, and nodding head,
And little chin with chrystal spread,
Poor helpless thing! what do I see,
That I should sing of thee?

From thy small tongue no accents come,
Which can but rub thy toothless gum;
Small understanding boasts thy face,
Thy shapeless limbs, nor step nor grace,
A few short words thy feats may tell,
And yet I love thee well.

When sudden wakes the bitter shriek,
And redder swells thy little cheek;
When rattled keys thy woes beguile,
And through the wet eye gleams the smile,
Still for thy weakly self is spent
Thy little silly plaint.

But when thy friends are in distress,
Thou'lt laugh and chuckle ne'er the less;
Nor even with sympathy be smitten,
Though all were sick but thee and kitten;
Yet, little varlet that thou art,
Thou twitchest at my heart.

Thy very cheek, so soft and warm;
Thy pinky hand, and dimpled arm;
Thy silken locks, that scantly peep,
With gold tipped ends, where circles deep
Around thy neck in harmless grace;
So soft and sleekly hold their place,
Might harder hearts with kindness fill,
And gain our right good will.

Each passing swain bestows his blessing;
Thy mouth is worn with old wives kissing;
Even lighter looks the gloomy eye
Of surly sense, when thou art by;
And yet, I think whoe'er they be,
They love thee not like me.

Perhaps when time shall add a few
Short years to thee, thou'lt love me too:
Then wilt thou, through life's weary way,
Become my sure and charming stay;
Will care for me, and be my hold,
When I am weak and old.

Thou'lt listen to my lengthened tale,
And pity me when I am frail,
But see! the sweeping spinning fly,
Upon the window, takes thine eye;
Go to thy little senseless play;
Thou dost not heed my lay.

THE GRAVES OF A HOUSEHOLD.

They grew in beauty side by side,
They filled one home with glee;—
Their graves are severed far and wide,
By mount, and stream and sea.

The same fond mother bent at night
O'er each fair sleeping brow;
She had each folded flower in sight,—
Where are those dreamers now?

One, 'midst the forests of the West,
By a dark stream is laid,—
The Indian knows his place of rest,
Far in the cedar's shade.

The sea, the blue lone sea, hath one,
He lies where perils lie deep;
He was the loved of all, yet none
O'er his lone bed may weep.

One sleeps where southern vines are drest
Above the noble slain;
He wrapt his colours round his breast,
On a blood-red field of Spain.

And one o'er her the myrtle showers
Its leaves by soft winds fanned;
She faded 'midst Italian bowers,—
The last of that bright band.

And parted thus they rest, who played
Beneath the same green tree;
Whose voices mingled as they prayed—
Around one parent knee!

They that with smiles lit up the hall,
And cheered with song the hearth,—
Alas! for love, if this were all;
And nought beyond this earth!

Mrs. Hemans.

MY FATHER'S AT THE HELM.

The curling waves with awful roar
A little bark assailed,
And pallid fear's distracting power
O'er all on board prevailed,

Save one, the Captain's darling child,
Who steadfast viewed the storm;
And cheerful, with composure, smiled
At danger's threat'ning form.

"And sport'st thou thus," a seaman cried,
"While terrors overwhelm?"

"Why should I fear?" the child replied,
  "My father's at the helm!"

So, when our mortal all is reft,
  Our earthly helpers gone;
We still have one sure anchor left,
  God helps, and He alone.

He to our prayers will lend his ear,
  He'll give our pangs relief;
He'll turn to smiles each troubling care,
  To joy each torturing grief.

Then turn to him 'midst sorrow wild,
  When woes and wants o'erwhelm;
Remembering, like that fearless child,
  Our *Father's* at the helm.

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THE ROSE.

The rose had been washed, just washed in a shower,
  Which Mary to Anna conveyed,
The plentiful moisture encumbered the flower,
  And weighed down its beautiful head.

The cup was all filled, and the leaves were all wet,
  And seemed to a fanciful view,
To weep for the buds it had left with regret
  On the flourishing bush where it grew.

I hastily seized it, unfit as it was
  For a nosegay, so dripping and drowned,
And swinging it rudely, too rudely, alas!
  I snapped it,—it fell to the ground!

And such, I exclaimed, is the pitiless part
  Some act by the delicate mind,
Regardless of wringing and breaking a heart
  Already to sorrow resigned.

This elegant rose, had I shaken it less,
  Might have bloomed with its owner a while;
And the tear that is wiped with a little address,
  May be followed perhaps with a smile.

Cowper.

AN ADVICE.

Of Heaven ask virtue, wisdom, health,
But never let thy prayer be wealth,
If food be thine, (though little gold,)
And raiment to repel the cold;
Such as may nature's wants suffice,
Not what from pride and folly rise.
If the soft motion of thy soul,
And a calm conscience crown the whole,
Add but a friend to all this store,
You can't in reason wish for more;
And if kind Heaven this comfort brings,
'Tis more than Heaven bestows on kings.

Cotton.

THE DESTRUCTION OF SENACHERIB.

The Assyrian came down like a wolf on the fold,
And his cohorts were gleaming with purple and gold;
And the sheen of their spears was like stars in the sea,
When the blue wave rolls nightly on deep Galilee.
Like the leaves of the forest when summer is green,
That host with their banners at sunset were seen;
Like the leaves of the forest when Autumn hath blown,
That host on the morrow lay withered and strown.

For the Angel of Death spread his wings on the blast,
And breathed in the face of the foe as he passed;
And the eyes of the sleepers waxed deadly and chill,
And their hearts but once heaved, and for ever grew still!
And there lay the steed with his nostrils all wide,
But through it there rolled not the breath of his pride;

And the foam of his gasping lay white on the turf,
And cold as the spray of the rock-beating surf.

And there lay the rider distorted and pale,
With the dew on his brow, and the rust on his mail;
And the tents were all silent, the banners alone,
The lances unlifted, the trumpet unblown.
And the widows of Ashur are loud in their wail,
And the idols are broke in the temple of Baal;
And the might of the Gentile, unsmote by the sword,
Hath melted like snow in the glance of the Lord!

Byron.

WOMAN.

Woman! blest partner of our joys and woes!
Even in the darkest hour of earthly ill
Untarnished yet, thy fond affection glows,
Throbs with each pulse, and beats with every thrill!
Bright o'er the wasted scene thou hoverest still
Angel of comfort to the failing soul;
Undaunted by the tempest wild and chill,
That pours its restless and disastrous roll
O'er all that blooms below, with sad and hollow howl!

When sorrow rends the heart, when feverish pain
Wrings the hot drops of anguish from the brow;
To sooth the soul, to cool the burning brain,
Oh who so welcome, and so prompt as thou!
The battle's hurried scene, and angry glow—
The death-encircled pillow of distress,—
The lonely moments of secluded woe,—
Alike thy care and constancy confess,
Alike thy pitying hand and fearless friendship bless.

Thee, youthful fancy loves in aid to call;
Hence first invoked the sacred sisters were;
The form that holds the enthusiast's heart in thrall
He 'mid his bright creation, paints most fair;—
True in his earthly wilderness of care,—

As hunter's path the wilds and forests through;
And firm—all fragile as thou art—to bear
Life's dangerous billow, as the light canoe
That shoots with all its freight the impetuous rapid's flow.

J. W. Eastburn.

PRAISE TO GOD IN PROSPERITY AND ADVERSITY.

Praise to God, immortal praise,
For the love that crowns our days;
Bounteous source of every joy,
Let thy praise my tongue employ.

For the blessings of the field,
For the stores the gardens yield,
For the vine's exalted juice,
For the generous olive's use.

Flocks that whiten all the plain,
Yellow sheaves of ripened grain,
Clouds that drop their fattening dews,
Suns that temperate warmth diffuse.

All that spring with bounteous hand,
Scatters o'er this smiling land;
All that liberal Autumn pours
From her rich o'erflowing stores.

These to thee my God, we owe,
Source whence all our blessings flow;
And for these my soul shall raise
Grateful vows and solemn praise.

Yet should rising whirlwinds tear,
From its stem, the ripening ear;
Should the fig-tree's blasted shoot
Drop her green untimely fruit:

Should the vine put forth no more,
Nor the olive yield her store,

Though the sickening flocks should fall,
And the herds desert their stall.

Should thine altered hand restrain
The early and the latter rain;
Blast each opening bud of joy,
And the rising year destroy;

Yet to Thee my soul shall raise
Grateful vows and solemn praise,
And, when every blessing's flown,
Love thee—for thyself alone.

Mrs. Barbauld.

THE BIBLE.

——— Hast thou ever heard
Of such a book? The author, God himself;
The subject, God and man, salvation, life
And death—eternal life, eternal death—
Most wondrous book! bright candle of the Lord!
Star of Eternity! The only star
By which the bark of man could navigate
The sea of life, and gain the coast of bliss
Securely; only star which rose on Time,
And, on its dark and troubled billows, still,
As generation, drifting swiftly by,
Succeeded generation, threw a ray
Of Heaven's own light, and to the hills of God—
The everlasting hills,—pointed the sinner's eye.
By Prophets, Seers, and Priests, and sacred Bards,
Evangelists, Apostles, men inspired,
And, by the Holy Ghost anointed, set
Apart and consecrated, to declare
On earth the counsels of the Eternal One.
This Book—this holiest, this sublimest Book—
Was sent, Heaven's will, Heaven's code of laws entire
To man this Book contained; defined the bounds
Of vice and virtue, and of life and death;

And what was shadow—what was substance taught.

* * * * * * *

This Book—this holy book, on every line
Marked with the seal of high divinity;
On every leaf bedewed with drops of love
Divine, and with the eternal heraldry
And signature of God Almighty stampt
From first to last—this ray of sacred light;—
This lamp, from off the everlasting throne,
Mercy took down, and in the night of Time,
Stood, casting on the dark her gracious bow;
And evermore beseeching men with tears
And earnest sighs, to read, believe, and live.
And many to her voice gave ear, and read,
Believed, obeyed; and now, as the Amen,
True, Faithful Witness swore, with snowy robes
And branchy-palms, surround the fount of life,
And drink the streams of immortality,
For ever happy, and for ever young.

Pollock.

THE DECEITFULNESS OF THE WORLD.

In the morning of life when its sweet sunny smile
  Shines bright on our path, we may dream we are blest,
We may look on the world as a gay fairy isle,
  Where sorrow's unknown, and the weary have rest.

But the brightness that shone, and the hopes we enjoyed,
  Are clouded ere noon, and soon vanish away;
While the dark beating tempest on life's stormy tide,
  Obscures all the sweets of the morning's bright ray.

Then where are those bowers in some gay, happy plain,
  Where hope ne'er deceives, and where love is aye true;
Where the brightness of morning shines on, but to gain
  A sunshine as bright, and as promising too?

Oh! ask for it not, in this valley of night,
  Where we smile but to weep, and we ne'er can find rest;

For the world we would wish, shines afar in the skies,
The sorrows unknown—'tis the home of the blest!

Alpha.

THE VIOLET.

Serene as the morning, the bird leaves its nest,
And sings a salute to the dawn;
The sun with his splendour illumines the east,
And brightens the dew on the lawn.

While the sons of debauch to indulgence give way,
And slumber the prime of their hours;
Let us, my dear Betsey, the garden survey,
And make our remarks on the flowers.

The gay, gaudy tulip, observe as you walk,
How flaunting the gloss of its vest;
How proud and how stately it stands on its stalk,
In beauty's diversity drest!

From the rose and carnation, the pink and the clove,
What odours delightfully spring!
But the south wafts a richer perfume to the grove,
As he brushes the leaves with his wing.

Apart from the rest in her purple array,
The violet humbly retreats;
In modest concealment, she peeps on the day,
Yet none can excel her in sweets.

So humble, that though with unparalleled grace,
She might even a palace adorn,—
She oft in the hedge hides her innocent face,
And grows at the foot of the thorn.

So beauty, my fair one, is doubly refined,
When modesty heightens her charms;
When meekness, like thine, adds a gem to her mind,
Of malice the force it disarms.

Though Venus herself, from her throne should descend,
And the Graces await at her call;
To thee the gay world would with preference bend,
And hail thee the Violet of all.

Saturday Magazine.

THE BETTER LAND.

"I hear thee speak of the better land;
Thou call'st its children a happy band;
Mother! O where is that radiant shore?—
Shall we not seek it and weep no more?—
Is it where the flower of the orange blows,
And the fire-flies dance through the myrtle boughs?"
"Not there, not there, my child!"

"Is it where the feathery palm-trees rise,
And the date grows up under many skies?—
Or, 'midst the green islands on glittering seas,
Where fragrant forests perfume the breeze,
And strange bright birds, on their starry wings,
Bear the rich hues of all glorious things?"
"Not there, not there, my child!"

"Is it far away, in some region old,
Where the rivers wander o'er sands of gold?
Where the burning rays of the ruby shine,
And the diamond lights up the secret mine,
And the pearl gleams forth from the coral strand,
Is it there, sweet mother, that better land?"
"Not there, not there, my child!—

"Eye hath not seen it, my gentle boy!
Ear hath not heard its deep song of joy;
Dreams cannot picture a world so fair—
Sorrow and death may not enter there:
Time doth not breathe on its fadeless bloom,
For beyond the clouds, and beyond the tomb!
It is there, it is there my child!"

Mrs. Hemans.

INSTRUCTIONS TO A PORTER.

You! to whose care I've now consigned
My house's entrance, caution use,—
While you discharge your trust, and mind
Whom you admit and whom refuse.

Let no fierce passions enter here,
Passions the raging breast that storm;
Nor scornful pride, nor servile fear,
Nor hate, nor envy's pallid form.

Should Avarice call—you'll let her know
Of heaped-up riches I've no store;
And that she has no right to go,
Where Plutus has not been before.

Lo! on a visit hither bent,
High plumed Ambition stalks about,
But should he enter, sweet Content
Will give me warning—shut him out.

Perhaps the Muse may pass this way,
And though full oft I've bent my knee,
And long invoked her magic sway,
Smit with the love of harmony;

Alone though she might please—yet still
I know she'll with Ambition come;
With lust of fame my heart she'll fill,
She'll break my rest—I'm not at home.*

There is a rascal, old and hideous,
Who oft, (and sometimes not in vain)
Close at my gate has watched assiduous,
In hopes he might admittance gain.

---

* The answer often sent by some while really at home to those whom they do not wish to see—a practice which should not be followed, since it is injurious to truth.

His name is Care—if he should call,
  Quick out of doors with vigour throw him
And tell the miscreant once for all,
  I know him not,—I ne'er will know him.

Perhaps then Bacchus, foe to Care,
  May think he'll sure my favour win.
His promises of joy are fair,
  But false; you must not let him in.

But welcome that sweet power on whom
  The young desires attendant move;
Still flushed with beauty's vernal bloom,
  Parent of bliss, the Queen of Love.

O! you will know her, she has stole
  The lustre of my Delia's eye;
Admit her, hail her—for my soul
  Breathes double life when she is nigh.

Bedingfield.

THE VULTURE OF THE ALPS.

I've been among the mighty Alps, and wandered through their vales,
And heard the honest mountaineers relate their dismal tales,
As round the cottage blazing hearth, when their daily work was o'er,
They spake of those who disappeared, and ne'er were heard of more.

And there I from a shepherd heard a narrative of fear,
A tale to rend a mortal heart, which mothers might not hear:
The tears were standing in his eyes, his voice was tremulous;
But, wiping all those tears away, he told his story thus:

"It is among these barren cliffs, the ravenous vulture dwells,
Who never fattens on the prey which from afar he smells;
But, patient, watching hour on hour upon a lofty rock,
He singles out some truant lamb, a victim from the flock.

One cloudless sabbath summer morn, the sun was rising high,
When from my children on the green, I heard a fearful cry,

As if some awful deed were done, a shriek of grief and pain,
A cry, I humbly trust in God, I ne'er may hear again.

I hurried out to know the cause; but, overwhelmed with fright,
The children never ceased to shriek, and from my frenzied sight
I missed the youngest of my babes, the darling of my care;
But something caught my searching eye, slow-sailing through the air.

O! what a spectacle to meet a father's eye—
His infant made a vulture's prey, with terror to descry;
And know, with agonizing breast, and with a maniac rave,
That earthly power could not avail, that innocent to save!

My infant stretched his little hands imploringly to me,
And struggled with the ravenous bird, all vainly, to get free;
At intervals, I heard his cries, as loud he shrieked and screamed!
Until upon the azure sky a lessening spot he seemed.

The vulture flapped his sail-like wings, though heavily he flew,
A mote upon the sun's broad face, he seemed unto my view;
But once I thought I saw him stoop as if he would alight—
'Twas only a delusive thought, for all had vanished quite.

All search was vain, and years had passed; that child was ne'er forgot,
When once a daring hunter climbed unto a lofty spot;
From whence, upon a rugged crag the chamois never reached,
He saw an infant's fleshless bones the elements had bleach'd!

I clambered up that rugged cliff—I could not stay away—
I knew they were my infant's bones thus hastening to decay;
A tattered garment yet remained, though torn to many a shred;
The crimson cap he wore that morn was still upon the head."

That dreary spot is pointed out to travellers passing by,
Who often stand, and musing, gaze, nor go without a sigh.
And as I journeyed, the next morn, along my sunny way,
The precipice was shewn to me whereon the infant lay.

Anonymous.

CHRISTIAN MISSIONS.

From Greenland's icy mountains,
  From India's coral strand,
Where Afric's sunny fountains
  Roll down their golden sand;
From many an ancient river,
  From many a palmy plain—
They call us to deliver
  Their land from error's chain.

Shall we, whose souls are lighted
  With wisdom from on high,
Shall we to men benighted
  The lamp of light deny?
Salvation! O salvation!
  The joyful sound proclaim,
Till each remotest nation
  Has learned Messiah's name.

Waft, waft, ye winds, his story,
  And you, ye waters, roll,
Till, like a sea of glory,
  It spreads from pole to pole;
Till o'er our ransomed nature
  The lamb for sinners slain,
Redeemer, King, Creator,
  In bliss returns to reign.

Heber.

ADDRESS TO A STEAMBOAT.

Freighted with passengers of every sort,
A motley throng, thou leav'st the port.
Thy long and ample deck,
Where scattered lie
Baskets and cloaks, and shawls of scarlet dye;
Where dogs and children, through the crowd are straying,
And, on the bench apart, the fiddler playing,

While matron dames to tressled seats repair,
Seems on the gleaming waves a floating fair.

Its dark form on the sky's pale azure cast
Towers from this clustering group thy pillared mast;
The dense smoke issuing from its narrow vent
Is to the air in curly volumes sent,
Which, coiling and uncoiling on the wind,
Trails like a writhing serpent far behind.
Beneath, as each merged wheel its motion plies,
On either side the white churned waters rise,
And, newly parted from the noisy fray,
Track with light ridgy foam the recent way;
Then far diverged, in many a welting line
Of lustre, on the distant surface shine.

Thou holdst thy course in independent pride;
No leave ask'st thou of either wind or tide;
To whate'er point the breeze, inconstant veer,
Still doth thy ceaseless helmsman onward steer,
As if the stroke of some magician's wand
Had lent thee power the ocean to command.

Yet, nevertheless, whate'er we owe to thee,
Rover at will, on river, lake, and sea,
Dearer to fancy, to the eye more fair,
Are the light skiffs, that, to the breezy air,
Unfurl their swelling sails of snowy hue
Upon the moving lap of ocean blue;
As the proud swan on summer lake displays,
Her fair pavilion of erected wings,—
They change, and veer, and turn like living things.

In very truth, compared to these thou art
A daily labourer, a mechanic swart;
Beholding thee, the great of other days,
And modern men with all their altered ways,

Across my mind with hasty transit gleam,
Like fleeting shadows of a feverish dream;
Fitful I gaze, with adverse humours tossed,
Half sad, half proud, half angry, and half pleased.

Joanna Bailie.

THE LOVE OF CHRIST.

Oh! never, never canst thou know
  What then for thee the Saviour bore,
The pangs of that mysterious woe
  That wrung his frame at every pore,
The weight that pressed upon his brow,
  The fever of his bosom's core!
Yes, man for man perchance may brave
The horrors of the yawning grave,
And friend for friend, or child for sire,
Undaunted and unmoved expire,—
From love—or piety—or pride;—
But who can die as Jesus died?

A sweet but solitary beam,
  An emanation from above,
Glimmers o'er life's uncertain dream,
  We hail that beam and call it love!
But fainter than the pole star's ray
Before the noon-tide blaze of day,
And lighter than the viewless sand
Beneath the wave that sweeps the strand,
Is all of love that man can know,—
All that an angel-breast can glow,—
Compared, O Lord of Hosts! with thine,
Eternal—fathomless—divine!

Dale.

HEBREW MELODY.

Mourn, Israel, mourn, thy long faded glory;
  No sceptre is thine, the Shecina is gone;

Thy temple's a desert, thy grandeur a story,
Then who shall befriend thee? Alas! is there none?

Oh yes, there is One! though by all else forsaken,
Unpitied, unfriended, denounced though thou be;
His mercies but slumber, and soon shall awaken,
And burn with new ardour devoted to thee.

What though thy mute harps be hung on the willows,
And the harpers no more give their songs to the breeze?
And what though thy children be tossed on life's billows,
All scattered and dashed, and as restless as these?

A pitying spirit is hovering above thee—
'Tis Abraham's spirit—then banish thy fears;
While Abraham lives, Jehovah must love thee
And comfort thee still in this season of tears.

Albert.

A NIGHT SCENE.

The following piece is a good example of the different manners alluded to in the introduction. It is a specimen of PLAINTIVE NARRATIVE. At the commencement of the fourth stanza, a VEHEMENT EXPRESSION OF DESPAIR:—

It was a winter's evening, and fast came down the snow,
And keenly o'er the wide heath the bitter blast did blow—
When a damsel all forlorn, quite bewildered in her way,
Pressed her baby to her bosom, and sadly thus did say:

"Oh! cruel was my father, that shut his door on me,
And cruel was my mother, that such a sight could see,
And cruel is the wintry wind, that thrills my heart with cold,
But crueler than all, the lad that left my love for gold.

Hush, hush, my lovely babe, and warm thee in my breast,
Ah! little thinks thy father how sadly we're distressed;
For cruel as he is, did he know but how we fare,
He'd shelter us in his arms from the bitter piercing air.

Cold, cold, my dearest jewel! thy little life is gone:
Oh! let my tears revive thee, so warm that trickle down.
My tears that gush so warm, oh! they freeze before they fall,
Ah! wretched, wretched mother, thou'rt now bereft of all."

Then down she sunk despairing, upon the drifted snow,
And, wrung with killing anguish, lamented loud her woe;
She kissed her babe's pale lips, and laid it by her side,
Then cast her eyes to heaven, then bowed her head and died.

THE SOLDIER'S DREAM.

Our bugles sang truce, for the night-cloud had lowered,
  And the sentinel stars set their watch in the sky;
And thousands had sunk on the ground overpowered,
  The weary to sleep, and the wounded to die.

When reposing that night on my pallet of straw,
  By the wolf-scaring faggot that guarded the slain;
At the dead of the night a sweet vision I saw,
  And thrice, ere the morning, I dreamed it again.

Methought from the battle-field's dreadful array,
  Far, far I had roamed on a desolate track;
'Twas Autumn, and sunshine arose on the way,
  To the home of my fathers, that welcomed me back.

I flew to the pleasant fields traversed so oft,
  In life's morning march, when my bosom was young;
I heard my own mountain-goats bleating aloft,
  And knew the sweet strain that the corn-reapers sung.

Then pledged we the wine-cup, and fondly I swore,
  From my home and my weeping friends never to part;
My little ones kissed me a thousand times o'er,
  And my wife sobbed aloud in her fulness of heart.

Stay, stay with us; rest, thou art weary and worn,
  And fain was their war-broken soldier to stay—
But sorrow returned with the dawning of morn,
  And the voice in my dreaming ear melted away.

Campbell.

THE PLACE OF REST.

There is a place of peaceful rest
To mourning wanderers given;
There is a tear for souls distrest,
A balm for every wounded breast—
'Tis found above—in heaven!

There is a soft, a downy bed,
'Tis fair as breath of even:
A couch for weary mortals spread,
Where they may rest their aching head,
And find repose in heaven!

There is a home for weeping souls,
By sin and sorrow driven;
When tost on life's tempestuous shoals
Where storms arise, and ocean rolls,
And all is drear—but heaven!

There faith lifts up the tearful eye,
The heart with anguish riven,
And views the tempest passing by,
The evening shadows quickly fly,
And all serene in heaven!

There fragrant flowers immortal bloom,
And joys supreme are given;
There rays divine disperse the gloom;
Beyond the confines of the tomb
Appears the dawn of heaven!

Anon.

MOTHER, WHAT IS DEATH?

"Mother, how still the baby lies!
I cannot hear his breath;
I cannot see his laughing eyes—
They tell me this is death.

My little work I thought to bring,
And sat down by his bed,
And pleasantly I tried to sing—
They hushed me—he is dead.

They say that he again will rise,
More beautiful than now;
That God will bless him in the skies—
Oh, mother, tell me how?"

"Daughter, do you remember, dear,
The cold, dark thing you brought,
And laid upon the casement here—
A withered worm, you thought?

I told you that Almighty power
Could break that withered shell,
And show you, in a future hour,
Something would please you well.

Look at the chrysalis, my love,—
An empty shell it lies;—
Now raise your wandering glance above
To where yon insect flies!"

"Oh, yes, mamma! how very gay
Its wings of starry gold!
And see! it lightly flies away
Beyond my gentle hold.

O, mother, now I know full well,
If God that worm can change,
And draw it from this broken cell,
On golden wings to range—

How beautiful will brother be,
When God shall give *him* wings,
Above this dying world to flee,
And live with heavenly things!"

Gilman.

THE SEXTON.

Nigh to a grave that was newly made,
Leaned a sexton old on his earth-worn spade:
His work was done, and he paused to wait
The funeral train through the open gate:
A relic of by-gone days was he,
And his locks were white as the foamy sea—
And these words came from his lips so thin:
"I gather them in! I gather them in!"

"I gather them in! for man and boy,
Year after year of grief and joy,
I've builded the houses that lie around
In every nook of this burial ground.
Mother and daughter, father and son
Come to my solitude, one by one—
But come they strangers, or come they kin,
I gather them in! I gather them in!

"Many are with me, but still I'm alone!
I am king of the dead—and make my throne
On a monument slab of marble cold,
And my sceptre of rule is the spade I hold.
Come they from cottage, or come they from hall—
Mankind are my subjects—all, all, all!
Let them loiter in pleasure, or toilfully spin—
I gather them in! I gather them in!

"I gather them in—and their final rest,
Is here, down here in the earth's dark breast—"
And the sexton ceased—for the funeral train
Wound mutely over that solemn plain;
And I said to my heart—when time is told,
A mightier voice than that sexton's old
Will sound o'er the last trump's dreadful din—
"I gather them in! I gather them in!"

Park Benjamin

PLAY SATURDAY.

I love to look on a scene like this,
Of wild and careless play,
And persuade myself that I am not old,
And my locks are not yet grey;
For it stirs the blood in an old man's heart,
And it makes his pulses fly,
To catch the thrill of a happy voice,
And the light of a pleasant eye.

I have walked the world for fourscore years,
And they say that I am old;
And my heart is ripe for the reaper Death,
And my years are well nigh told.
It is very true—it is very true—
I'm old, and "I bide my time,"
But my heart will leap at a scene like this,
And I half renew my prime.

Play on! play on! I am with you there,
In the midst of your merry ring;
I can feel the thrill of the daring jump,
And the rush of the breathless swing.
I hide with you in the fragrant hay,
And whoop the smothered call;
And my feet slip up on the seedy floor,
And I care not for the fall.

I am willing to die when my time shall come,
And I shall be glad to go,
For the world, at best, is a weary place,
And my pulse is beating slow;
But the grave is dark, and the heart will fail
In treading its gloomy way;
And it wiles my heart from its dreariness,
To see the young so gay.

Willis

WHAT IS THAT, MOTHER?

"What is that, mother?"
"The lark, my child,—
The morn has but just looked out, and smiled,
When he starts from his humble, grassy nest,
And is up and away with the dew on his breast,
And a hymn in his heart to yon pure bright sphere,
To warble it out in his Maker's ear.
Ever, my child, be thy morn's first lays
Tuned like the lark's, to thy Maker's praise."

"What is that, mother?"
"The dove, my son,—
And that low, sweet voice, like a widow's moan,
Is flowing out from her gentle breast,
Constant and pure by that lonely nest,
As the wave is poured from some chrystal urn,
For her distant dear one's quick return.
Ever, my dear son, be thou like the dove,—
In friendship as faithful, as constant in love."

"What is that, mother?"
"The eagle, boy,—
Proudly careering his course of joy,
Firm in his own mountain vigour relying,
Breasting the dark storm, the red bolt defying;
His wing on the wind, and his eye on the sun,
He swerves not a hair, but bears onward, right on.
Boy, may the eagle's flight ever be thine,
On and upward, true to the line."

"What is that, mother?"
"The swan, my love,—
He is floating down from his native grove,
No loved one now, no nestling nigh,
He is floating down by himself to die;

Death darkens his eye, and unplumes his wings,
Yet the sweetest song is the last he sings—
Live so, my love, that when death shall come,
Swan-like and sweet, it may waft thee home.

G. W. Doane.

OMNIPRESENCE OF GOD.

Above—below—where'er I gaze,
  Thy guiding finger, Lord, I view,
Traced in the midnight's planet blaze,
  Or glistening in the morning dew:
Whate'er is beautiful or fair,
Is but thy own reflection there.

I hear thee in the stormy wind,
  That turns the ocean wave to foam;
Nor less thy wondrous power I find,
  When summer airs around me roam;
The tempest and the calm declare
Thyself, for thou art every where.

I find thee in the depth of night,
  And read thy name in every star
That drinks of splendour from the light,
  That flows from mercy's beaming car;
Thy footstool, Lord, each starry gem
Composes—not thy diadem.

And when the radiant orb of light
  Hath tipped the mountain tops with gold,
Smote with the blaze my weary sight,
  I shrunk from the wonders I beheld;
That ray of glory, bright and fair
Is but thy living shadow there.

Thine is the silent noon of night,
  The twilight eve—the dewy morn;

Whate'er is beautiful and bright,
  Thine hands hath fashioned to adorn.
Thy glory walks in every sphere,
And all things whisper, "God is here!"

Anon.

DERIVATIVES OCCURRING IN SECTION V.

Root and Meaning.	Derivatives and Meaning.
Alimentum, nourishment	*Aliment*, food
Clamo, I call out	Ac*clama*tion, a shout of applause
Cometa, a comet or blazing star	*Comet*, a body in the planetary system
Credo, I believe	In*cred*ible, not worthy of belief
Futilus, foolish, silly	*Futile*, trifling, worthless
Gluten, glutinis, glue, paste	*Glutin*ous, gluey, resinous
Latus, broad	Di*late*, to widen, to extend
Lemma, an argument	Di*lemma*, an argument equal by contrary suppositions
Mitto, I send	Trans*mit*, to send over
Mors, mortis, death	*Mort*ification, gangrene, vexation
Mathesis, learning	*Mathe*matics, the science of quantity
Oscillatio, a swinging up and down in the air	*Oscillat*ing, moving backwards and forwards
Phrasis, a phrase	*Phras*eology, style, diction
Ploro, I wail or lament	De*plor*able, sad, calamitous
Salus, salutis, health, safety	*Salut*ary, healthful, advantageous
Skopeo, I see	Epi*scop*acy, Church government by Bishops, i. e., *overseers*
Terminus, a bound or limit	In*termin*ous, without end
Topos, a place	*Topo*graphy, description of places
Vasto, I waste, vastatus, laid waste	De*vastate*, to plunder
Velox, velocis, swift	*Velo*city, speed, quick motion
Voveo, I vow, votus, vowed	*Vote*, suffrage, voice given

SECTION V.

MISCELLANEOUS PIECES.

THE ART OF PRINTING.

Various cities have claimed the honour of this invention; but it is now generally admitted to be due to Haerlem, a town in Holland. It is attributed to Lawrence Koster, an alderman in that city, in 1440. Amusing himself one day in the neighbouring wood, with cutting the bark of trees into the letters that formed the initials of his name, he is said to have laid them on paper, and afterwards observed, that from the dew their form was impressed on the paper. This accident induced him to make further experiments; he next cut his letters in wood, and dipping them in a glutinous liquid, impressed them on paper, which he found an improvement; and soon after, substituting leaden and pewter letters, erected a press in his house; thus laying the foundation of this noble art, which has thus gradually risen to its present excellence. The art, it is said, was stolen from him by his servant, John Faustus, who conveyed it to Mentz, and from the novelty of the discovery, soon acquired the title of doctor and conjurer.

By the gradual improvement of this art, and its application to the diffusion of knowledge, a new era has been formed in the annals of the human race. In the flourishing ages of Greek and Roman literature, none but persons of rank and property could acquire any knowledge of letters; and this must have ever continued to be the case, had not this invention, by reducing books to less than a hundredth part of their former price, facilitated the diffusion of knowledge. We have it from good authority, that about A. D. 1215, the Countess of Anjou gave two hundred sheep, five quarters of wheat, and the same quantity of rye for a volume of sermons; and it is also upon record, that the value of manuscript bibles commonly was from 400 to 500 crowns,—a sum which, according to the relative value of money then and now, could not be less than as many pounds sterling at the present day. How trifling would be the literary attainments of the people of modern Europe, if such a state of things still existed! The typographic art has contributed infinitely more to the improvement of the human mind, and civilization of the species than all the speculations and discoveries of philosophy.

To it we owe the Reformation from Popery—the rank we occupy as a nation—the sublime discoveries of science—the blessed diffusion of religion. And if ever the benefactors of mankind deserved to have statues erected to their honour, the inventors of the art of printing are certainly the men; for of all events which have ever happened among mankind, this invention constitutes, next to the establishment of Christianity, the most interesting and important.

McCulloch's Course of Reading.

ON PRAYER.

From the beginning of the world to the present day, the sober minded and thinking part of mankind have regarded prayer as a duty of high importance. The wise have considered it as strengthening that sense of dependence, those sentiments of gratitude, of reverence, and of love, which are due from the creature, to the bountiful, ever-present, all perfect Creator;—as exciting our benevolence towards those with and for whom we pray; and as awakening a right sense of our sinfulness and infirmity. The conscientious have esteemed it a duty enforced by the express command of God. The pious have found it a privilege, conveying joys and honours, which the world knoweth not. Its blessed influence is not confined to the sunny hours of life, when every pulse is health, and every sense is pleasure. Thousands have attested that it can pour upon the season of sickness, of poverty, of reproach and of death, not flashes of momentary rapture merely, but calm, enduring, ineffable joy. Before it can accomplish such effects, it must have become not only "the form of sound words," but the utterance of the heart,—not an occasional resort in difficulty or distress, but the settled habit of the soul. I solemnly warn my young readers against considering any form of words,—even though drawn from the oracles of the living God,—sufficient of themselves to constitute a prayer acceptable to the Almighty, or useful to the souls of men. *God is a spirit: and they that worship him, must worship him in spirit.* No prayer deserves the name, which is not the overflowing of an humble, penitent, and obedient heart; nor can any be accepted of God, which is not made in a lowly sense of our unworthiness, and offered to him in the name of a crucified Redeemer. Therefore, let every act of devotion be preceded by a sincere and earnest endeavour to awaken in ourselves dispositions suitable to prayer. Before praise, let us raise our minds to contemplate the perfections of Jehovah, lest we incur the guilt of those who *honour him with their mouths while their heart is far from him.* Before thanksgiving, let us call to mind his beneficence, lest an empty *form* of gratitude, when the *sentiment* is wanting, be an offence to the Searcher of Hearts. Before confession, let us strive to awaken our hatred to our own peculiar sins, lest a careless catalogue of transgressions, which we intend not to forsake, seem but an audacious braving of Him, *who is of purer eyes than to behold iniquity.* Before petition, let us humbly consider the urgency of our necessities and the feebleness of our claims, lest in begging that, without which we perish, we come short of the earnestness and importunity to which the Lord has promised his blessing. My dear young friends! it is no solitary recluse, no surly misanthrope, no fanatic, no enthusiast who addresses you, but a woman in the prime of life, as cheerful, as happy, though perhaps not quite so gay, as most of you,—active in the business, alive to many of the pleasures of the present state of existence. But her chief business, as well as yours, is to extend the kingdom of God in her own heart, and in those of others; and if she should be made the instrument of attracting even the least of her fellow-creatures to that service which is perfect freedom, she will at once give and receive pleasures which excel all those of a present world, as far as the capacities of angels exceed those of the babe that was born this hour.

Mrs. Brunton.

THE ROMAN JUDGE.

While Octavius was at Samos, after the famous battle of Actium, which made him master of the world, he held a council to examine the prisoners who had been of Anthony's party. Among the rest, there was brought before him a man named Metellus, oppressed with age and infirmities, disfigured by a long beard and a neglected head of hair, but especially by his clothes, which, through adversity, were become ragged. The son of this Metellus was one of the judges, and had great difficulty to discover his father in the deplorable condition in which he now saw him. At length, however, recollecting his features, instead of being ashamed of his unhappy parent, he ran with tears to embrace him. Then returning to the tribunal, "Cæsar," said he, "my father has been your enemy, and I your officer; he deserves to be punished, and I to be rewarded. The favour I ask of you is, that you would save him on my account, or order me to be put to death with him." All the judges were touched with compassion at this affecting scene. Octavius himself relented, and granted to old Metellus his life and liberty.

CHANGES OF THE UNIVERSE.

Every thing around us is in a constant state of motion, yet nothing falls into disorder. The heavenly bodies perform their revolutions with the utmost regularity. Even those eccentric bodies, comets, *have* their orbits, and travel regularly within their allotted space. How regularly and invariably do the seasons depart and return! Spring and summer, seed-time and harvest, never fail to return. The visible world itself is perpetually undergoing changes. The earth is constantly being deprived of its nourishing juices by the plants and roots. But is it, therefore, worn out and rendered sterile? No; for the same wise Being who has ordained that the vegetable and animal creation shall depend upon the earth's fecundity for support, has ordained, likewise, that the fecundity shall be perpetually renewed and maintained. With our own frames it is the same. At every instant of our lives we are literally *wearing out* our bodies. Insensible perspiration alone deprives us every day of some pounds weight of our substance. But the aliments which God has provided for us, replace the waste thus caused, and restore us the strength we expend.

How wonderful is the wisdom which has thus provided for the continued existence of the universe! How wonderful, also, is the power which has from the beginning of time instituted this unvarying succession of circumstances! Can we reflect upon the innumerable manifestations of this power, of this wisdom, without feeling the highest admiration and the utmost humility? Above all, when we reflect upon the innumerable instances in which, to this power and this wisdom, there is added a boundless and almost incredible benevolence, can we fail to be penetrated by the most sincere and profound gratitude? If we meditate aright we surely cannot: let us then, not become guilty as well as unwise, by neglecting thus to meditate.

Guide to Knowledge.

BENJAMIN FRANKLIN.

Benjamin Franklin was the son of a tallow-chandler at Boston, in the United States. His father, who was a poor man, brought him up as a printer. Benjamin was fond of reading, and spent all the money he could spare in buying books. At the same time he did not neglect his work. He lived sparingly, and never wasted his time. When seventeen years old, he removed to Philadelphia, and there worked for some time with a printer named Keimer. He was already, by his talents and diligence, able to write a letter in neat and proper language. It chanced that the Governor of the province saw a letter he had written, and thought so highly of it that he went to seek for the young printer at his master's shop, and invited him to his house. Franklin soon after went to London, in England, where he worked for some time with various printers. While the other workmen spent five or six shillings a-week on beer, and thus were always muddling their brains, Benjamin drank no fermented or spirituous liquor, and, thus, while much clearer in the head, and much healthier than they, he saved a little money. At twenty years of age, he returned, much improved, to Philadelphia, where, soon after, he set up in business with Mr. Keimer. He was now extremely industrious. Every day he composed or arranged the types of a sheet of small folio, besides attending to other business. His neighbours, pleased with his diligence, his honest and correct behaviour, and his lively talents, brought him all the custom they could; and thus he could not fail to prosper. He now set up a newspaper, which he conducted with so much prudence and ability, that it acquired a great circulation, and brought him in much profit. Still, however, to show that he was not spoilt by his success, he dressed very plainly, lived frugally, and would sometimes be seen wheeling along a barrow containing the paper which he had purchased for his printing office. He then set up as a stationer, commenced a subscription library, and began to publish an annual work entitled *Poor Richard's Almanack,* which contained a great number of prudent and sensible advices. Still, amidst all his cares, he gave much of his time to the improvement of his mind. At thirty, so great was the respect he had gained amongst his fellow-citizens, that he was appointed clerk to the House of Assembly for the province, and next year he became deputy-post-master. At the same time, he did not forget that, with such abilities as he possessed, he owed a certain duty to his fellow-creatures. He set up a philosophical society for cultivating science and letters; he established a superior academy for the education of youth; and he was the means of establishing a company for insurance against loss by fire. Indeed, almost all the public affairs of the province were more or less directed by Benjamin Franklin.

Afterwards, he engaged in scientific investigations. In the year 1752, by means of a kite, he drew down electricity from thunder-clouds, by which he was the first to show that lightning and the electric fluid are the same thing. This discovery made the name of the Philadelphia printer famous throughout Europe. When he had arrived at a mature period of life, the American provinces and the Mother Country engaged in a war, which ended in the former becoming independent of the latter. In this contest Franklin took a leading part. He for some years acted as ambassador from his native country to the king of France—which gave him occasion to remember a passage of Scripture which his father would sometimes repeat, "Seest thou a man diligent in business? he shall stand before kings;"—the full sense of which we can only feel when it is known that in the East, long ago, as well as now, to *stand* before a king was a high mark of honour, while to *sit* is the greatest honour with us. Thus Benjamin Franklin concluded his life in wealth and honour far above that of most men, though he had originally entered life a very poor boy.

When one man has done well in the world, it is natural for the rest to wish to know by what means he prospered. If we make this inquiry respecting Franklin, we shall find satisfactory answers in the writings he left us. He says, "The way to wealth, if you desire it, is as plain as the way to market. It depends chiefly on two words—*industry* and *frugality*; that is, waste neither time nor money, but make the best use of both. Without industry and frugality, nothing will do; and with them every thing. After industry and frugality, nothing contributes more to the raising of a young man in the world, than punctuality and justice in all his dealings. "Diligence," he adds, "is the mother of good luck. God gives all things to industry. Work while it is called to-day, for you know not how much you may be hindered to-morrow. If you were a servant, would you not be ashamed that a good master should catch you idle? If, then, you are your own master, be ashamed to catch yourself idle."

Moral Class Book.

IRON.

Iron is a metal of a livid greyish colour, hard and elastic, and capable of receiving a high polish. Its weight is nearly eight times as great as that of water. Of all the metals there is none which, on the whole, is so useful, or so copiously and variously dispersed as iron. Indeed its value is beyond all estimate. "Without it," says Fourcroy, "agriculture could not have existed, nor could the plough have rendered the earth fertile. The philosopher, while he studies the progress of the human understanding, and compares the fortune and state of the different nations established on various portions of the surface of the globe, will remark, that their iron-works seem, in some measure to be proportioned to their intelligence, to the advancement of reason amongst them, and the degree of perfection to which arts have arrived. When we consider it in this point of view, as the agent by which men, in the variety of its uses, and the numerous wants it supplies, acquire enjoyments which would be unknown to them if they did not possess these products of their industry, iron must singularly contribute to extend their ideas, to multiply their knowledge, and conduct their spirits towards that perfectibility which nature has given, no less as the character of the human species than as the source of all the advantages it can enjoy." The uses of iron were ascertained at a very early period of the world. Moses speaks of furnaces for iron, and of the ores for which it was extracted, and tells us that swords, knives, axes, and instruments for cutting stones, were, in his time, all made of this metal. The ores of iron are now found in every quarter of the globe, but the most considerable iron mines at present existing, are those in Great Britain and France. The former country is particularly favoured both for the excellence of its native iron, and the prodigious advantage which the steam-engine gives the inhabitants in its manufactures.

After iron is dug out of the earth, it is broken into small pieces, or sometimes crushed by machinery. This operation ended, one of the first processes is that of *roasting*. This is effected by mixing it with refuse coal and lighting the whole mass, and the object of the manufacturer is to detach the sulphur and some other extraneous substances that are capable of being separated by heat. The next process is to mix it with a certain portion of limestone and charcoal, and by the aid of a blast furnace, to fuse or melt the iron. Near the bottom of the furnace there is a tap-hole, through which the liquid metal is discharged into furrows made in a bed of sand. The larger masses, or those which flow into the main furrow, are called *sows;* the smaller ones are denominated *pigs* of iron; and the general name of the metal in this state is *cast iron*. It is afterwards refined, and becomes bar iron. Iron is employed in three states,—of cast iron, wrought iron, and steel. The hammers employed at the Carron works in Scotland for beating the iron, weigh about four hundred weight each, and make about two hundred and fifty blows in a minute.

Iron is converted into steel by keeping bars of iron in contact with powdered charcoal, during a high state of heat, for several hours, in earthen troughs or crucibles, the mouths of which are stopped up with clay. Steel, if heated to redness, and suffered to cool slowly, becomes soft; but if plunged, while hot, into cold water, it acquires extreme hardness. Although thus hardened, it may have its softness and ductility restored, by being again heated, and suffered to cool slowly. A piece of polished steel, in heating assumes first a straw-yellow colour, then a lighter yellow, next becomes purple, then violet, then red, next deep blue, and last of all bright blue. At this period it becomes red hot, the colours disappear, and metallic scales are formed upon and incrust its surface. All these different shades of colour indicate the different tempers that the steel acquires by the increase of heat, from that which renders it proper for files, to that which fits it for the manufacture of watch-springs.

Iron is easily drawn into small wire, and this is effected by passing the metal through a series of holes in a steel plate, so that each hole is somewhat smaller than the one which precedes it. By this means wire for musical instruments, and other purposes, may be procured less than the hundredth of an inch in diameter.

Compiled.

THE LITTLE CREOLE.

Mr. Frevill, who has written much for young people, relates a story of a very affecting nature, concerning a little girl who saved her father's life by determining to die with him. In the fury of the French revolution, an honest Creole* of St. Domingo, who had no other fault but that of being rich, was arrested, and condemned to die. He was accused of being a bad citizen. When he was torn from the bosom of his family, his daughter, who was a very young girl, followed him, and determined to share his fate, whatever it might be. The Creole was the first of the victims whom they were about to immolate. His eyes were bound, and he was kneeling, while the soldiers, who were charged with the cruel office of putting him to death, had already presented their arms, and in one minute this unhappy man would have been launched into eternity. At the moment when the signal was to have been given, the little girl was observed running in the greatest confusion, and she had sprung upon her father before they had time to think of stopping her. She grasped him in her arms, and held him with all the force of which her strength was capable, crying with a voice almost stifled by her tears,—"O, my father, we will die together!" Her father, who could not return her embrace, entreated her to go away, telling her she must live to be the consolation of her mother; but the child only pressed herself the more closely to him, and continued repeating, "we will die together."

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* Such as are of European origin, but born in the West Indies, are called Creoles.

This affecting spectacle excited compassion in every heart. The soldiers remained motionless, and their commander, who had no longer courage to give the signal for death, was induced by a sentiment of humanity which had been stirred up to spare him, formed some pretext to save him from death, and had him taken back to prison with his child. A moment's delay was precious in these disastrous times, and affairs taking a new turn, the poor father was soon after set at liberty. From that happy day, he never ceased to relate with emotion this heroic action of his daughter. The child was at that time only in the tenth year of her age.

* * *

CIRCULATION OF THE BLOOD.

The knowledge of this wonderful function of nature has conferred incalculable advantages upon mankind. For the discovery of it, we are indebted to Dr. Harvey, who lived in the time of Queen Elizabeth.

The following is a general account of the apparatus, by which the circulation of the blood is carried on. There are two sets of tubes which carry the blood from the heart to the extremities of the body, and back again to its main fountain. The tubes which carry it from the heart to the extremities are called *arteries;* those which return it to the heart are called *veins.* Upon the unceasing movement of the blood at a proper pace through these, health depends. The arteries joining to the cavities of the heart by great trunks, branch out in all directions into a great number of very small pipes; and to convey the precious fluid back again, the other set of pipes, called veins, join the extremities of the arteries and receive it from them. The general appearance of these important tubes, is the same, but the office of the arteries is to distribute the blood—of the veins, to collect it. The minute veins unite in larger branches, the branches unite in still larger trunks, till the collected fluid is at length poured into the heart through one opening, by an arrangement just the reverse of that by which it set out.

But what engine, it may be asked, works this curious machinery? It is propelled by the *heart.* This is a hollow muscle situated in the central part of the body; and, like all other muscles, it has the power of contracting. It has four cavities or hollow places, and when its fibres are contracted, the sides of the cavities are squeezed together, so that any fluid that the heart may at the moment contain is forced out. When this is done the fibres relax again, and the heart once more becomes hollow. As it swells out, the blood pours into the cavities from the large vein which brings it back to the heart. The quantity of fluid impelled into the arteries at each contraction, is always equal to that which it has just received. The velocity with which the blood must flow when the heart beats *violently* is inconceivable; for, in the ordinary course of nature, the heart contracts 4000 times in one hour, each time ejecting about one ounce of blood, or two table spoonsful. Thus does this wonderful organ go on month after month, year after year, without weariness or interruption, alternately contracting and dilating itself, 4000 times in an hour, conveying renewed strength to every part of the body. It hence follows, that there passeth through the heart every hour 4000 ounces, or 350 pounds of blood.

Now the whole mass of blood in a full grown person is about twenty-five pounds; so that a quantity of blood, equal to the whole blood within the body, passes through the heart fourteen times in one hour.

In all this there is great evidence of wise contrivance. As the arteries which disperse the blood are smaller than the veins, it follows that the blood presses their sides with greater force than it acts against the coats of the veins. For this greater pressure the arteries are fitted by being formed of much tougher and stronger materials than the veins. It should also be noticed as a mark of wise design, that all the arteries are furnished with valves that play easily forward, but do not admit the blood to return to the heart.

There is still another circumstance remarkably illustrative of the Great Artificer, by whom we are so "wonderfully made." As a wound in the arteries through which the blood passes with such force from the heart, would be more dangerous than a wound in the veins, the former are defended by a more sheltered situation. They are deeply buried among the muscles or they creep along grooves made for them in the bones. In the fingers, for example, which are liable to so many injuries, the bones are so hollowed out in the inside, and along this channel the artery runs in such security, that you may cut your finger to the bone without doing it any injury. The under side of the ribs is also sloped and furrowed, to allow these important tubes to pass along in safety.

Compiled.

MOSES ROTHSCHILD.

At the time of the French Revolution there lived at Frankfort-on-the-Maine, a Jewish banker, of limited means, but good reputation, named Moses Rothschild. When the French army invaded Germany, the Prince of Hesse Cassel was obliged to fly from his dominions. As he passed through Frankfort he requested Moses Rothschild to take charge of a large sum of money and some valuable jewels, which he feared might otherwise fall into the hands of the enemy. The Jew would have declined so great a charge, but the prince was so much at a loss for the means of saving his property, that Moses at length consented. He declined, however, giving a receipt for it, as in such dangerous circumstances he could not be answerable for its being safely restored.

The money and jewels, to the value of several hundred thousand pounds, were conveyed to Frankfort; and just as the French entered the town, Mr. Rothschild had succeeded in burying it in a corner of his garden. He made no attempt to conceal his own property, which amounted only to six thousand pounds. The French accordingly took this without suspecting that he had any larger sum in his possession. Had he, on the contrary, pretended to have no money, they would have certainly searched, as they did in many other cases, and might have found and taken the whole. When they left the town, Mr. Rothschild dug up the prince's money, and began to make use of a small portion of it. He now prospered in his business, and soon gained much wealth of his own.

A few years after, when peace came, the Prince of Hesse Cassel returned to his dominions. He was almost afraid to call on the Frankfort banker, for he readily reflected that if the French had not got the money and jewels, Moses might pretend they had, and thus keep all to himself. To his great astonishment, Mr. Rothschild informed him that the whole property was safe, and now ready to be returned, with five per cent. interest on the money. The banker, at the same time, related by what means he had saved it, and apologised for breaking upon the money, by representing, that, to save it, he had to sacrifice all his own. The prince was so impressed by the fidelity of Mr. Rothschild under his great trust, that he allowed the money to remain in his hands at a small rate of interest. To mark also his gratitude, he recommended the honest Jew to various European sovereigns, as a money-lender. Moses was consequently employed in several great transactions for raising loans, by which he realised a vast profit. In time he became immensely rich, and put his three sons into the same kind of business in the three chief capitals of Europe —London, Paris, and Vienna. All of them prospered. They became the wealthiest private men whom the world had ever known. He who lived in London, left at his death seven millions sterling. The other two have been created barons, and are perhaps not less wealthy. Thus, a family, whose purse has maintained war, and brought about peace, owes all its greatness to one act of extraordinary honesty under trust.

Moral Class Book.

WAR.

The first great obstacle to the extinction of war, is the way in which the heart of man is carried off from the horrors by the splendour of its accompaniments. There is a feeling of the sublime in contemplating the devouring energy of a tempest; and this so engrosses the whole man, that his eye is blind to the tears of bereaved parents, and his ear is deaf to the piteous moan of the dying, and the shriek of their desolated families. There is a gracefulness in the picture of a youthful warrior burning for distinction in the field:—and this side of the picture is so much the exclusive object of our regard, as to disguise from our view the mangled carcasses of the fallen, and the writhing agonies of the hundreds, and the hundreds more who have been laid on the cold ground, where they are left to languish and to die. There no eye pities them. No sister is there to weep over them. There no gentle hand is present to ease the dying posture, or to bind up the wounds, which, in the maddening fury of the combat, have been given and received by the children of one common Father.

Chalmers.

ADVENTURE OF A QUAKER VESSEL.

The religious body called Quakers, or Friends, are distinguished by their never engaging in war, or resisting any kind of violence that may be offered to them. In the reign of Charles II. of England, an English merchant-vessel, trading between London and Venice, was commanded by a Quaker; the mate, whose name was Thomas Lurting, was of the same persuasion, but the rest of the crew, four in number, were ordinary Christians. The vessel in one of its voyages homeward from Venice, was taken by Turkish pirates, ten of whom came on board of it, in order to carry it to Africa, where these men were accustomed to sell their prisoners as slaves. The second night afterwards, when the Turkish captain was sleeping below with several of his men, Thomas Lurting persuaded the rest, one after another, to go into different cabins, that they might shelter themselves from the rain, which was falling heavily. When he found them all asleep, he gathered their arms together into one place, and said to his men, "Now we have the Turks entirely in our command: let us not, however, hurt any of them; we shall only keep them below until we reach Majorca." Majorca being an island of the Spaniards, he calculated upon being safe there, and upon soon being able to return to England.

In the morning a Turk coming to the cabin-door, was allowed to go on deck, where he was greatly surprised to find the vessel once more in the hands of the English crew, and not far from Majorca. Going below, he told the rest, who were quite confounded by the news. With tears in their eyes, they entreated that they might not be sold to the Spaniards, whom they knew to be very cruel masters. The master and mate promised that their lives and liberties should be safe, and took measures to keep them concealed, while the vessel should remain in port at Majorca. The Turks were very much pleased at this kindness, so different from the treatment they had designed for the English.

While the vessel lay in the harbour, the master of another English ship came on board, and to him they confided their secret, telling him that they would not sell their Turkish prisoners, but land them, if possible, on some part of the African coast.

The stranger laughed at them for their generosity, and told them that they might get two hundred pieces of gold for each man; to which they replied, that they would not sell them for the whole island. Their visitor, contrary to his promise, disclosed the secret, and a resolution was formed amongst the Spaniards to seize the Turks. The two Quakers, hearing what was designed, instantly set sail, and by the aid of their prisoners, they succeeded in escaping pursuit. For nine days they cruized about the Mediterranean, uncertain what course to take to get quit of their prisoners, but determined not to land them in any Christian country. On one occasion the Turks made an attempt to regain the command of the vessel, but were quietly put down by the master and mate. The English crew then began to grumble at the danger to which they were exposed by their superiors, who they said preferred the lives of the Turks to their own. The vessel was all this time undergoing the risk of being recaptured by some other Turkish rovers. Still the master and mate adhered to their resolution of avoiding bloodshed and the guilt of slavery. At length, having approached the coast of Barbary, it came to be debated how they were to set the Turks on shore. To have given them the boat for this purpose would have been dangerous, for they might have returned in it with arms, and taken the vessel. If sent with a portion of the crew, they might rise upon these men, and throw them into the sea. If sent in two detachments, that first landed might have raised the natives, and attacked the boat on its second arrival. At length Lurting offered to take the whole ashore at once, with the aid of two men and a boy. The captain consented to this arrangement, which was carried into effect without any accident. The Turks, on being set down on the beach, were so much reconciled to their generous captors, as to ask them to go along to a neighbouring village, where they promised to treat them liberally. But Lurting thought it more prudent to return immediately.

Favourable winds brought the vessel quickly to England, where the story of the captured Turks was already known. So great an interest did the forbearing conduct of the Quakers excite, that the King, the Duke of York, and several noblemen, came on board at Greenwich, to see the men who could act so extraordinary a part. The King took much the same view of the case which the English captain at Majorca had taken. To Thomas Lurting he said, "You should have brought the Turks to me;" to which the mate only made the mild reply, "I thought it better for them to be in their own country."

History of the Quakers.

THE YOUNG SHOULD BE PREPARED FOR DEATH.

Ye, my young friends, are apt to reckon yourselves privileged from death; you put the evil day far off; you promise to yourselves a length of happy days, and think that melancholy reflections upon mortality are ill suited to the bloom of your years, and the gaiety of your spirits. But trust not, O man, in thy youth, nor presume upon impunity from the destroyer. How often, when the tree puts forth buds, and spreads its blossoms to the sun, does the wind of the desert come, and blast the hopes of the year! The widow of Nain wept over her son, who died fair in the prime of life; and many a parent hath followed his child to the grave, crying with bitter lamentations, "Would to God that I had died for thee, my son! my son!" Your own experience may enforce this truth. None who now hear me, but have seen their equals in age cut off, and younger than they laid in the grave. As, therefore, you are always in danger, be always on your guard. Instead of filling you with gloom and melancholy, this is the true way to prevent them. Having subdued the last enemy, you have none other to fear. Then all things are yours; Death is a passage to a better life, and the gate of immortality.

Logan.

GRACE DARLING.

In the month of September, in the year 1838, the Forfarshire, a steam-vessel proceeding from Hull to Dundee, encountered some rough weather off the coast of Northumberland. The vessel not being strong, and the machinery of the steam-engine defective, she was wrecked on the rocks called the Great Harkars at the extremity of one of the Ferne Islands. Many of the crew and passengers were washed off the deck and drowned; and in a situation of such great peril, no one expected to return.

Early in the morning, the family who dwelt in the North Sunderland light-house, on looking abroad, beheld the vessel on the rocks, with a powerful sea beating upon her, and which threatened her with complete destruction. Darling, the keeper of the light-house, would fain have gone in his boat to rescue a few of the distressed passengers, but he despaired of carrying his little bark through such a heavy sea. He was at length encouraged to make the attempt by his daughter Grace, a girl of 22 years of age, who offered to accompany him, and work one of the oars. They went; they reached the wreck; nine persons trusted their lives to the boat; and notwithstanding the raging of the sea, the whole party arrived safely at the light-house, where every necessary kindness was shown to the individuals who had been rescued. As no other persons were saved from the wreck, it may be concluded that these would have perished had it not been for the heroism of Grace Darling, who was willing to risk her own life rather than allow so many of her fellow creatures to sink before her eyes, without an effort being made in their behalf.

The generous conduct of this young woman attracted much attention. Her praises were for a time in every mouth. Artists flocked to her lonely dwelling to take her portrait, and depict the scene in which she had been engaged. A sum exceeding six hundred pounds, collected by subscription, was presented to her; and some of the most eminent persons of the land wrote letters to her, containing warm expressions of regard. It is probable that her name and her heroic act will not soon be forgotten; for less admirable actions which took place several thousand years ago, are still remembered. Yet this excellent girl, as modest as she was brave, was heard to remark, that she never would have supposed she had done any thing extraordinary, if her conduct had not been so much spoken of by others.—Moral Class Book.

[It may be interesting for young readers to be told that the subject of this narrative did not long enjoy the kindness and approbation of an admiring public—Grace, like many blooming and lovely youths, fell a victim to consumption not long after, and dropped into an early grave.]

ON THE MICROSCOPE.

Microscopes are instruments for viewing small objects, and they apparently magnify objects, because they enable us to see them nearer than with the naked eye, without affecting the distinctness of vision. By making a pin-hole through a piece of brown paper, within two or three inches of any small object, the object will apparently be very much magnified, though without the paper it would at that distance have been imperceptible. *Single microscopes,* of the greatest power, are very small globules of glass, which are made by melting the ends of fine threads of glass in the flame of a candle; or by taking a little fine powdered glass on the point of a very small needle, and melting it into a globule. The most wonderful single microscopes are those lately made of diamond. When, or by whom the microscope was invented, is not certainly known, though it is believed that Drebell, a Dutchman, who had one in 1621, was either the inventor or an early improver of it. *Compound microscopes* consist of at least two lenses, by one of which an image is formed, and this image is viewed through the other lens, called the eye-glass, instead of the object itself, as in the single microscope. The microscope has opened to us a new world of animals and vegetables; it has taught us that objects invisible to the naked eye, exist, having figure, extension, and different parts. By means of this contrivance we perceive, for instance, that the very scales on the skin of a fish are all beautifully interwoven and variegated like pieces of net-work, which no art can imitate—that every particle of dust on a butterfly's wing; is a beautiful and regularly organized feather—that every hair of our head is a hollow tube, with bulbs and roots, furnished with a variety of threads and filaments. One of the most wonderful displays of nature is a drop of putrid water, as exhibited by a powerful microscope: it is full of living creatures of strange shapes, and the rapidity with which they seem to move is perfectly astonishing.

Upon examining the edge of a very keen razor with a microscope, it will appear as broad as the back of a knife; rough, uneven, full of notches and furrows. An exceedingly small needle, resembles a rough iron bar. But the sting of a bee, seen through the same instrument, exhibits every where a polish most amazingly beautiful, without the least flaw, blemish, or inequality, and it ends in a point too fine to be discerned. Thus sink the works of art before the microscopic eye. But the nearer we examine the works of God, even in the least of his productions, the more sensible shall we be of his wisdom and power. The most perfect work of man betray a meanness, a poverty, an inability in the workman; but the works of nature plainly prove, that the hand that formed them was Divine. To lead to such views the microscope is admirably fitted. By this admirable instrument we behold the same Almighty hand which rounded the spacious globe on which we live, and the huge masses of the planetary orbs, and directs them in their rapid courses through the sky—employed, at the same moment, in rounding and polishing ten thousand minute transparent globes in the eye of a fly, and boring and arranging veins and arteries, and forming and clasping joints and claws for the movements of a mite!

Compiled.

THE BRITISH EMPIRE.

In Europe, the British Empire borders, at once, towards the north, upon Denmark, upon Germany, upon Holland, upon France; towards the south, upon Spain, upon Sicily, upon Italy, upon Western Turkey. It holds the keys of the Adriatic and the Mediterranean. It commands the mouth of the Black Sea, as well as of the Baltic.

In America it gives boundaries to Russia towards the pole, and to the United States towards the temperate regions. Under the torrid zones it reigns in the midst of the Antilles, encircles the Gulf of Mexico, till at last it meets those new states, which it was the first to free from their dependance on the mother country, to make them more surely dependent upon its own commercial industry:—and, at the same time, to secure, in either hemisphere, any mortal who might endeavour to snatch the heavenly fire of its genius, or the secret of its conquest, it holds, midway between Africa and America, and on the road which connects Europe with Asia, that rock to which it chained the Prometheus of the modern world.

In Africa—from the centre of that island which was devoted of yore—to the safety of every Christian flag—the British Empire enforces from the Barbary States that respect which they pay to no other power. From the foot of the Pillars of Hercules, it carries dread into the remotest provinces of Morocco. On the shores of the Atlantic it has built the forts of the Gold Coast and the Lion's Mountain. On the same continent, beyond the tropics, and at the point nearest the Austral pole, it has possessed itself of a shelter under the very Cape of Storms. Where the Spaniards and the Portuguese thought only of securing a port for their ships to touch at—where the Dutch perceived no capabilities beyond those of a plantation—it is now establishing the colony of a second British people; and uniting English activity with Batavian patience, at this moment it is extending around the Cape the boundaries of a settlement which will increase in the south of Africa to the size of those states which it has formed in the north of America. From this new focus of action and of conquest, it cast its eyes towards India; it discovers, it seizes the stations of most importance to its commercial progress.

Finally—as much dreaded in the Persian Gulf and the Erythrean Sea, as in the Pacific Ocean, and the Indian Archipelago—the British Empire, the possessor of the finest countries of the earth, beholds its factors reign over eighty millions of subjects. The conquests of its merchants in Asia begin where those of Alexander ceased, and where the terminus of the Romans could never reach. At this moment, from the banks of the Indus to the frontiers of China—from the Ganges to the mountains of Thibet—all acknowledge the sway of a mercantile company, shut up in a narrow street in the City of London. M. Dupin.

THE CONSCIENTIOUS ELECTOR.

The royal burghs in Scotland are divided into fours and fives for the election of their representatives in Parliament, every four or five electing one representative. Formerly the electors or voters in each burgh were the members of the town-councils, who were generally in each case about sixteen or eighteen in number. When the electing burghs were four, and two were for one candidate and two for another, the election was settled by a casting or double vote given by one of them.

It chanced in 1807, when a general election took place, that in a burgh which had the casting vote on that occasion, the members of the council were so equally divided between the two candidates, and the choice came to depend on the vote of one man; and he was only a poor black-smith. The agents of one of the candidates went to this humble artisan to endeavour to secure his vote; but he frankly informed them that he had made up his mind in favour of the other candidate. They used every argument they could think of, to induce him to alter his resolution, but in vain.

They then held out hints, that, if he would vote for their friend, he should be rewarded with a good post, besides having his children provided for; but still he remained firm to his purpose. He said his vote was a trust he enjoyed for the benefit of his fellow-citizens; he was bound to use it in the way his conscience told him to be best for their interest; it was not a thing to be disposed of for his own advantage, or to gratify any other single individual, and he therefore would not so dispose of it. The agents still persisting, offered him a large sum of ready money, in addition to their promise of future favour, but with the like ill success. They increased the sum from five hundred to a thousand pounds, and from a thousand to fifteen hundred; but all was in vain, although the smallest of these sums was much more than the poor man could hope ever to gather by honest industry in the whole course of his life. They then took their leave, and he, next day, voted for the opposite candidate, who had conscientiously abstained from offering him any bribe.

Moral Class Book.

ST. PHILIP NERI AND THE YOUTH.

St. Philip Neri, as old readings say,
Met a young stranger in Rome's streets one day;
And, being ever courteously inclined
To give young folks a sober turn of mind,
He fell into discourse with him; and thus
The dialogue they held comes down to us.

N. Tell me what brings you, gentle youth, to Rome?
Y. To make myself a scholar, sir, I come.
N. And when you are one, what do you intend?
Y. To be a priest, I hope, Sir, in the end.
N. Suppose it so—what have you next in view?
Y. That I may get to be a canon too.
N. Well; and how then?
Y. ——— Why then, for ought I know,
I may be made a bishop.
N. Be it so—
What then?
Y. Why, cardinal 's a high degree—
And yet my lot it possibly may be.
N. Suppose it was—what then?
Y. Why, who can say,
But I've a chance of being pope one day?
N. Well, having worn the mitre and red hat,
And triple crown, what follows after that?
Y. Nay, there is nothing farther, to be sure,
Upon this earth, that wishing can procure.
When I've enjoyed a dignity so high,
So long as God shall please, then—I must die.
N. What, must you die? fond youth! and at the best
But WISH, and HOPE, and MAY BE all the rest,
Take my advice:—whatever may betide,
For that which *must* be, first of all provide;

Then for that which *may be*; and, indeed,
When well prepared, who knows what may succeed,
But you may be as you are pleased to hope,
Priest, Canon, Bishop, Cardinal, and Pope!

AN EXAMPLE FOR YOUTH.

A little boy in destitute circumstances, was put out as an apprentice to a mechanic. For some time he was the youngest apprentice, and of course had to go upon errands for the other apprentices, and not unfrequently to procure for them ardent spirits, of which all except himself partook; because, as they said, it did them good. He, however, used none; and, in consequence of it, was often the object of severe ridicule from the older apprentices, because, as they said, he had not sufficient manhood to drink rum. And as they were revelling over their poison, he, under their insults and cruelty, often retired, and vented his grief in tears. But now, every one of the older apprentices, we are informed, is a drunkard, or in the drunkard's grave; and this youngest apprentice, at whom they used to scoff, is sober and respectable, worth a hundred thousand dollars. In his employment are about a hundred men, who do not use ardent spirits: and he is exerting upon many thousands an influence in the highest degree salutary, which may be transmitted by them to future generations, and be the means of preparing multitudes, not only for usefulness and respectability on earth, but it is hoped also for heaven.

Weekly Visitor.

SUPERSTITION.

The following anecdotes in the very interesting voyage of Bennet and Tyerman, round the world, very well illustrate the absurdity and groundlessness of some superstitious fears:

"Our chief mate told us, that on board a ship where he had served, the mate on duty ordered some of the youths to reef the main top-sail. When the first got up, he heard a strange voice saying, "It blows hard." The lad waited for no more; he was down in a trice and telling his adventure. A second immediately ascended, laughing at the folly of his companion, but returned even more quickly, declaring that he was quite sure that a voice not of this world had cried in his ear, "It blows hard!" Another went, and another, but each came back with the same tale. At length the mate having sent up the whole watch, ran up the shrouds himself, and when he reached the haunted spot, heard the dreadful words distinctly uttered in his ears, "It blows hard!" "Aye, aye, old one! but blow it ever so hard, we must ease the earings for all that," replied the mate undauntedly; and, looking round, he spied a fine parrot perched on one of the clues, the thoughtless author of all the false alarms, which had probably escaped from some other vessel, but had not previously been discovered to have taken refuge on this.

Another of our officers mentioned, that on one of his voyages, he remembered a boy having been sent up to clear a rope which had got foul about the mizen-top. Presently, however, he returned back, trembling, and almost tumbling to the bottom, declaring that he had seen "Old Davy" aft the cross-trees; moreover, that the evil one had a huge head and face, with prick ears, and eyes as bright as fire. Two or three others were sent up in succession; to all of whom the apparition glared forth, and was identified by each to be "Old Davy," sure enough. The mate, in a rage, at length mounted himself, when resolutely, as in the former case, searching for the bug-bear, he soon ascertained the innocent cause of so much terror to be a large horned owl, so lodged as to be out of sight to those who ascended on the other side of the vessel, but which, when any one approached the cross-trees, popped up his portentous visage to see what was coming. The mate brought him down in triumph, and "Old Davy," the owl, became a very peaceable shipmate among the crew, who were no longer scared by his horns and eyes; for sailors turn their backs on nothing when they know what it is. Had the birds, in these two instances, departed as secretly as they came, of course they would have been deemed supernatural visitants to the respective ships, by all who had heard the one, or seen the other. The greater number of supposed supernatural sights and sounds, if thus investigated, would be found to proceed in like manner from natural causes.

Weekly Visitor.

TURKISH JUSTICE.

A grocer in the city of Smyrna had a son, who, with the help of the little learning the country could afford, rose to the post of naib, or deputy of the cadi, or magistrate, and as such visited the markets, and inspected the weights and measures of all retail dealers. One day, as this officer was going his rounds, the neighbours, who knew enough of his father's character to suspect that he might stand in need of the caution, advised him to move his weights, for fear of the worst; but the old cheat depending on his relation to the inspector, and sure, as he thought, that his own son would not expose him to a public affront, laughed at their advice, and stood very calmly at his shop door, waiting for his coming. The naib, however, was well assured of the dishonesty and unfair dealing of his father, and resolved to detect his villany, and making an example of him. Accordingly he stepped to the door, and said coolly to him, "Good man, fetch out your weights, that we may examine them." Instead of obeying, the grocer would fain have put it off with a laugh, but was soon convinced his son was serious, by hearing him order the officers to search his shop, and seeing them produce the instruments of his fraud, which, after an impartial examination, were openly condemned and broken to pieces. His shame and confusion, however, he hoped would plead with a son to excuse him all farther punishment of his crime: but even this, though entirely arbitrary, the naib made as severe as for the most indifferent offender, for he sentenced him to a fine of fifty piastres, and to receive a bastinado of as many blows on the soles of his feet. All this was executed on the spot, after which the naib, leaping from his horse, threw himself at his feet, and watering them with his tears, addressed him thus:—"Father, I have discharged my duty to my God, my sovereign, and my country, as well as my station; permit me now, by my respect and submission, to acquit the debt I owe to a parent. Justice is blind—it is the power of God on earth—it has no regard to father or son—God and our neighbour's rights are above the ties of nature—you had offended against the laws of justice, you deserved this punishment—you would, in the end have received it from another. I am sorry it was your fate to have received it from me. My conscience would not suffer me to act otherwise; behave better for the future, and instead of blaming, pity my being reduced to so cruel a necessity." This done, he mounted his horse again, and then continued his journey, amidst the acclamations and praise of the whole city for so extraordinary a piece of justice; report of which being made to the Sultan, he advanced him to the post of cadi, from whence by degrees, he rose to the dignity of mufti, who is the head of both religion and law among the Turks.

Chambers' Journal.

ON THE ORGANS OF HEARING.

You all know what is meant by the term "hearing;" and you know that hearing is the property of the ear; and if asked what you hear, you probably answer, sounds; and in the ordinary way of talking you answer correctly enough. But the truth is, my young friends, you do not hear sounds. Sound is the sensation produced on certain nerves of the internal labyrinth of the ear, by the simple vibrations of the air. This may appear strange to you, but it is ascertained by various experiments: for example,—if a bell be struck by a hammer, or its clapper, in the air, we are instantly aware of the circumstance by the tone or sound produced, or in other words, by the action of the air upon the nerves of hearing; but, on the contrary, let the bell be struck in a space deprived of air, as for example, in the exhausted receiver of an air-pump, and no sound follows the blow; and why? there is no air to receive or transmit vibrations from the metal; the hammer strikes, and all is silent. The ear, then, is strictly an organ formed for *feeling* and discerning the vibrations or motions of the air, and this we call hearing. The loss of this sense, like that of sight, is produced by various causes, which derange the structure, or paralyze the nerves of this curious and delicate instrument.

The ear, when its various parts are examined and understood, discover great evidences of design and wisdom. It may be said to consist of two portions, external and internal. The external ear varies in shape and power of motion in different creatures. The use of this part seems to be that of collecting and concentrating the currents of the air proceeding from certain points; hence the horse, in whom the power of motion is great, turns the ear to the side from which the noise proceeds, and so do the deer and other timid animals that are often dependent upon their agility and quickness of hearing for safety. Some animals have no external ear at all—in birds the opening is protected by feathers. The internal parts of the ear constitute the essential organ. They consist, in quadrupeds, of cavities hollowed out in the hardest bone in the animal, containing a fluid, through which are dispersed the minute filaments of the *hearing* nerve. This nerve penetrates into these hollows, collectively termed the *labyrinth*, by traversing an innumerable multitude of perforations, which serve as channels to the many small threads into which it divides. The nerve, after spreading thus through the labyrinth, becomes soft and pulpy, instead of being in the form of a firm cord, as the other portions of this, and most other nerves become. From the external opening of the ear a tube proceeds inwards, in a curved direction, and is terminated by a ring, into which is fixed a membrane, stretched over a hollow, as parchment is stretched over the head of a drum. In this hollow four little bones are placed, respectively called the *mallet*, the *anvil*, the *spherical bone*, and the *stirrup*. Immediately below the head of the *mallet*, are inserted, two very small muscles,—one for relaxing, the other for tightening the membrane just mentioned. The chief use of this bone is to act as a lever in moving the two muscles, and thus modify the impulses of air which strike upon the membrane. The *anvil* has a hollow in its body, which receives the head of the mallet, and its chief use seems to be as a conductor of sound. The *third*, or *spherical bone*, is the smallest of all; it serves as the link of communication with the last bone, the *stirrup.* This singular bone, so named from its shape, is united by this point to the spherical bone, and its foot fills up the open entrance into the labyrinth. It is also the most essential of these little bones, as it has been remarked, that while it remains, though the other bones have been destroyed, the hearing is not entirely lost. Again, from the lower part of the *tympanum*, or place covered with the membrane, a tube commences, at first bony, and then cartilaginous, and terminates in the back of the mouth, at the side of the soft palate. By this tube the air is admitted into the cavity, and hence persons who are dull of hearing, are observed to listen with open mouths, so that the little bones may be acted upon as freely as possible by the uninterrupted impulses of the air, and this they do habitually and unconsciously. This is a general description of this curious organ. There are various other things very worthy of notice and admiration, but too intricate for you yet to understand. Indeed of the uses of the various curious parts of its machinery, we have still but an imperfect knowledge. But enough is known to bring all to the conviction, that it displays the skill of its Maker. Hence we may conclude with the sacred poet: "*He that planted the ear, shall He not hear!*"—Psalm xciv. 9.

Compiled.

PERSEVERANCE.

One of the most extraordinary, and the best attested instances of enthusiasm, existing in conjunction with perseverance, is related of the founder of the F—— family. This man who was a fiddler, living near Stourbridge, England, was often witness of the immense labour and loss of time necessary in the process of making nails. The discovery of the process called splitting, in works called splitting mills, was first made in Sweden; and the consequences of this advance in it were most disastrous to the manufacturers of iron about Stourbridge. F——, the fiddler, was shortly missed from his accustomed rounds, and was not again seen for many years. He had mentally resolved to ascertain by what means the process of splitting bars of iron was accomplished; and, without communicating his intention to a single human being, he proceeded to Hull, and without funds, worked his passage to the Swedish port. Arrived in Sweden, he begged and fiddled his way to the iron foundries, where he, after a time, became a universal favourite with the workmen; and from the apparent entire absence of intelligence, or anything like ultimate object, he was received into the works, to every part of which he had access. He took the advantage thus offered, and having stored his memory with observation, and all the combinations, he disappeared from amongst his kind friends as he had appeared, no one knew whence or whither. On his return to England he communicated his voyage and its results to Mr. Knight and another person in the neighbourhood, with whom he was associated, and by whom the necessary buildings were erected, and machinery provided. When at length every thing was prepared, it was found that the machinery would not act, at all events, it did not answer the sole end of its erection—it would not split the bar of iron. F—— disappeared again; it was concluded shame and mortification at his failure had driven him away for ever. Not so; again, though somewhat more speedily, he found his way to the Swedish iron-works, where he was received most joyfully, and, to make sure of their fiddler, he was lodged in the splitting-mill itself. Here was the very end and aim of his life attained, beyond his utmost hope. He examined the works, and very soon discovered the cause of his failure. He now made drawings, or rude tracings; and having remained an ample time to verify his observations, and to impress them clearly and vividly on his mind, he made his way to the port, and once more returned to England. This time he was completely successful, and by the results of his experience, enriched himself and greatly benefited his countrymen.

Chambers' Journal.

WANTS OF MANKIND.

Man, of all God's creatures is at once the most necessitous, and the most amply supplied. Compare a new-born infant with the young of any of the brute creation; and how infinitely more helpless does the former appear than the latter! Naked, weak, without perception, shrinking from the blast, and gasping for nourishment, a newly-born infant is the very image of destitution and imbecility.

The young of the brute creation speedily perfect their bodily faculties and the instincts necessary to their comfort and preservation; but the imbecile infancy of mankind, is a long period. During the first two years of a child's existence, he may be said to be utterly helpless; from that period he does, indeed, obtain the mastery of his bodily powers: but even then his mind is but a germ—a thing which is to be strong and luxuriant, but which will require a long and careful cultivation to render it so.

Between the helpless infant and the talented and accomplished man, there is scarcely a greater difference than there is between the savage and civilized man. The former may be considered in the light of an infant, which is by long and slow degrees to arrive at the comparative perfection of power and wisdom of the latter.

The beasts of the field have their caves and holes in which to find shelter, they have natural clothing suitable to the situation in which they exist, and their natural instincts are amply sufficient to the supply of all their natural wants. Behold how much less is done for man! How many arts must he invent and improve upon; how much must he endure of privation, disappointment and fatigue; how many disadvantages, in short, must he overcome before he can reach even the lowest degree of the comfort and enjoyment of civilization? How much better, then, are the animals situated than men? So, indeed we might exclaim, if we took but one, and that, but a very imperfect view of the question. But we should constantly remember, that man has two very important blessings of which the brute creation, for wise purposes, is left destitute—*Reason* and *Speech*. In the possession of reason, the greatest of all the benevolent gifts of God, man has ample resources for the supply of all his wants. The animals cannot increase the experience or sagacity of their kind. The various animals of to-day have as much instinct as the animals of the earliest creation, but have no more. But man is not only gifted with reason, which he can improve, but is gifted also with speech, by means of which the individuals of each generation can improve each other, and hand down their improvements to the latest posterity. It is thus, that man is continually progressing nearer to perfection. It is thus, that each age has the wisdom and the toil of all preceding ages, as the ground-work upon which to exert its own study and its own industry.

Those of mankind, who are placed beyond the reach of all wants, are consequently not only deprived of the best stimulus to useful and agreeable exertion, and of all that tends to purify the heart and soothe the feelings, but are the most discontented and unhappy, and spend most of their hours in misery. The day is too long for them, for they have no business; the night is too tedious to them, for they have not tasted that wholesome and moderate fatigue, which would render sleep beneficial to them. Thus their days are spent in bitterness, and their nights in wakeful discontent; and when the last day of life at length arrives, they, for the first time, learn the value of being able to live; and expire in an agony of regret for the days they have wasted, and desire for days which they are not ordained to behold.

These brief remarks, it is hoped, will suffice to impress upon the minds of the young, the important truth, that every thing ordained by our Creator, is ordained for the best. The longer they live, and the more they read, reflect, and observe, the more strongly and convincingly will this truth impress itself upon them. It is a truth, which every thing by which we are surrounded is able to declare to us; if we will but observe what surrounds us, and receive truth when it is presented.

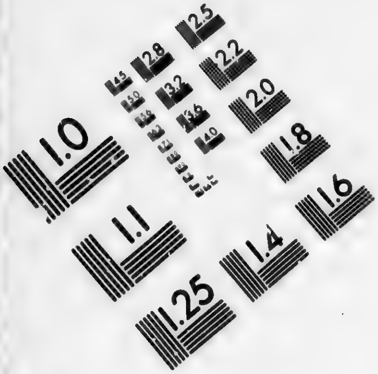
A SCENE OF HORROR IN THE PYRAMIDS OF EGYPT.

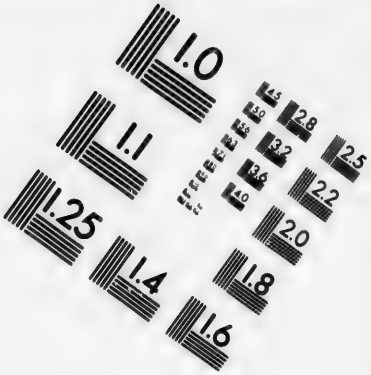
Some French travellers attempted to explore the vaults of the Egyptian Pyramids, and had already travelled an extensive labyrinth of chambers and passages; they were on their return, and had arrived at the most difficult part of it—a very long and winding passage, forming a communication between two chambers, its opening narrow and low. The ruggedness of the floor, sides, and roof, rendered their progress slow and laborious, and these difficulties increased rapidly as they advanced. The torch with which they had entered became useless, from the impossibility of holding it upright, as the passage diminished [illegible] height. Both its height and width at length, however, became [illegible] contracted, that the party were compelled to crawl on their bellies. Their wanderings in these interminable passages (for such in their fatigue of body and mind they deemed them), seemed to be endless. Their alarm was very great, and their patience already exhausted, when the headmost of the party cried out, that he could discern the light at the exit of the passage, and at a considerable distance ahead, but that he could advance no farther, and that, in his efforts to press on, in hopes to surmount the obstacle without complaining, he had squeezed himself so far into [illegible] opening, that he had now no longer strength even to [illegible] The situation of the whole party may be imagined: their [illegible] was beyond the power of direction or advice, while the wretched leader, whether from terror, or from the natural effect of his situation, swelled so that, if it was before difficult, it was now impossible for him to stir from the [illegible] thus miserably occupied. One of the party at this dreadful and critical moment, proposed, in the intense selfishness to which the feeling of vital danger reduces all, as the only means of escape from this horrible confinement—this living grave—to cut in pieces the wretched being who formed the obstruction, and clear it by dragging the dismembered carcase piece-meal past them! He heard this dreadful proposal, and contracting himself in agony at the idea of this death, was reduced by a strong muscular spasm to his usual dimensions, and was dragged out, affording room for the party to squeeze themselves by, over his prostrate body. This unhappy creature was suffocated in the effort, and was left behind a corpse.

Sears

METHOD OF TAKING AND TAMING ELEPHANTS.

The manner of taking and taming animals of so prodigious a strength, as seems to set all human power at defiance, deserves some notice. In order to take them wild in the woods, a spot of





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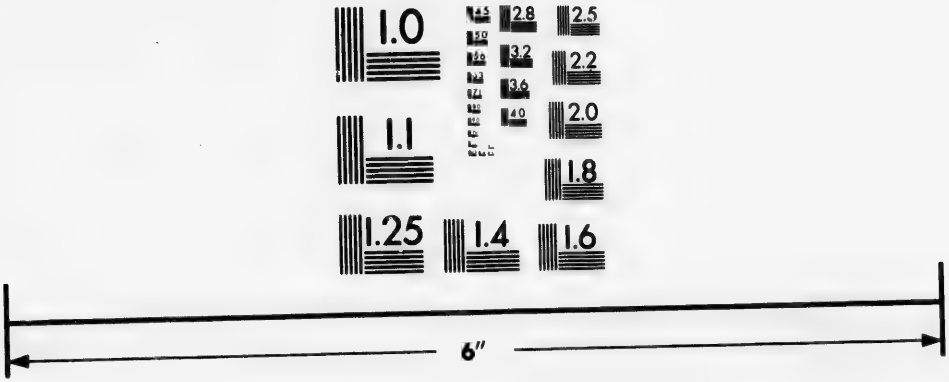

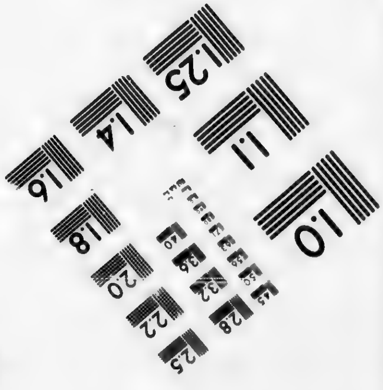

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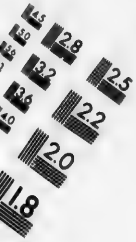

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ground is fixed upon, which is surrounded with a palisade, made of the thickest and strongest trees, joined by cross-bars, which tend to increase their strength. These posts are fixed at such a distance from each other that a man can easily pass between them; and there is only one great passage left open, through which the Elephant can easily come, which is contrived upon such principles as to close upon him the moment he has passed. To decoy the animal into this snare, it is necessary to conduct a tame female into the woods, which its keeper compels to set up a cry that instantly attracts the attention of one of her male friends, and induces him to follow the alluring sound, until he finds himself entrapped beyond retreat. The deceiving object of his solicitude still continues to lament and cry, and he pursues her into a confined passage, that it is impossible for him either to proceed or return; but when he perceives her let out at private door he begins to show violent marks of *indignation* at the *deceit.* The hunters, in the mean time, fix cords around his body, and endeavour to soften his anger by throwing buckets of water upon his back, pouring oil down his ears, and rubbing his body with fragrant leaves; two tame animals are then introduced to him, each of which alternately caress him with their trunks—afterwards a *third* is brought forward that has been taught to instruct the *new comer,* upon which an officer of some distinction rides. The hunters then open the inclosure, and the tractable creature leads his captive along until they arrive at a massy pillar, to which, for about twenty-four hours, it is tied. During that period its indignation begins to subside, and in the course of a fortnight it becomes completely tamed, acquires an attachment for the person who attends it, and thoroughly comprehends the different sounds of his voice.

SEBASTIAN CABOT.

Sebastian Cabot was a celebrated navigator. He was the son of John Cabot, a Venetian, but was born in the city of Bristol, England. Before he was twenty years of age, he made several voyages with his father, who, in the year 1495, obtained from Henry VII. a commission for himself and his three sons, part of which ran thus: "To navigate all parts of the ocean, for the purpose of discovering islands, countries, regions, or provinces, either of gentiles or infidels, which have hitherto been unknown to all Christian people; with power to set up his standard and take possession of the same, as vassals of the crown of England." A tolerable specimen of the arbitrary spirit of the times! John Cabot sailed from England in 1497, accompanied by his three sons. On the 24th of June, in the same year, he discovered a large island, to which he gave the name of Prima Vista, or the first seen, now called Newfoundland. A few days after, he discovered a smaller island, to which he gave the name of St. John's; and continuing his course westerly he soon fell in with the continent now called America, and sailed along the coast of Labrador, as far as latitude 67° 30′ north. Being, however, disappointed in his search for a north-west passage, he sailed along the whole coast towards the south, as far as Florida, and his was the honour of making the first and most extended discoveries of the main land of the New World. Columbus, to whom the honour is assigned, did not begin the voyage till a year after Cabot; and it was not till 1499 that Amerigo Vespucci, a Florentine, sailed with a squadron for the New World, and by publishing first the description of the new countries, carried off all the honours which more properly belonged to the others, and especially to the first, in which his sons also had a share.

Sebastian Cabot excelled in navigation, mathematics and cosmography, and in succeeding voyages made a settlement on the coast of Newfoundland; he was also the first European who touched the new continent, and therefore, on that ground, decidedly established for himself a greater claim to give it his name than those who have since borne it.

During the reign of Henry VIII. Sebastian tried to penetrate to the East Indies by the south, but not being supported in his object, he penetrated only as far as the Brazils, and visited Hispaniola and Porto Rico. In 1542 he engaged in the service of the Spaniards, the merchants of Spain having entrusted him with an expedition to the Moluccas or Spice Islands, through the newly discovered Straits of Magellan. During this voyage, at the Bay of All Saints, he was guilty of an action which has left a dark blot on his memory, for after being liberally supplied with necessaries by the hospitable inhabitants, he seized and carried off four young men, sons of the principal people in that place. To this act of cruelty he soon after added another; for, proceeding towards the River Plata, he landed on a desert island—Martin Mendez, his Admiral, Captain Francis de Rojas, and Michael de Rojas, where he left them, because they had censured his conduct. The golden dreams of Cabot were wholly disappointed in this expedition, and, in consequence, he returned to Spain, in 1531. Leaving Spain, he once more returned to England, and settled at Bristol. Hence Edward VI. took notice of him, delighted in his conversation, and allowed him a pension, and the protector Somerset also took him into favour. He was the oracle of the government on commercial matters, and was rewarded with the office of Governor of the Company of Merchant Adventurers. By this means a voyage was made to the north in 1552, and a trade commenced with Russia, which gave rise to the Russian company. No navigator ever deserved better of England than Sebastian Cabot. Skill, enterprise, and a general enthusiasm for professional distinction, were never more happily blended in the character of any mariner.

He was the first who noticed the variation of the magnetic needle. He published a map of the world, and an account of his voyages in the southern parts of the world. He died, according to some authorities, at the age of seventy, and according to others, he attained the age of eighty.

Weekly Visitor.

THE SIMOOM.

Among the dangers and severe inconveniences to which the traveller in Arabia is exposed, none is, perhaps, more to be dreaded than the simoom or hurricane, of which the following account is given by a modern traveller:—

The fifth day, after passing the night under the tents of El Henadi, we rose with the sun, and went out to saddle our dromedaries, but found them, to our great amazement, with their heads plunged deeply into the sand, from whence it was impossible to disengage them. Calling to our aid the Bedouins, they informed us that the circumstance presaged the simoom, which would not long delay its devastating course, and that we could not proceed without facing certain death. Providence has endowed the camel with an instinctive presentiment for its preservation. It is sensible two or three hours beforehand of the approach of this terrific scourge of the desert, and turning its face away from the wind, buries itself in the sand; and neither force nor want can move it from its position, either to eat or drink, while the tempest lasts, though it should be for several days.

Learning the danger which threatened us, we shared the general terror, and hastened to adopt all the precautions enjoined on us. Horses must not only be placed under shelter, but have their heads covered and their ears stopped; they would otherwise be suffocated by the whirlwinds of fine and subtle sand which the wind sweeps furiously before it. Men assemble under their tents, stopping up every crevice with extreme caution; and having provided themselves with water placed within their reach, throw themselves on the ground, covering their heads with a mantle, and stir no more till the desolating hurricane has passed.

That morning all was tumult in the camp; every one endeavouring to provide for the safety of his beasts, and precipitately retiring under the protection of his tent. We had scarcely time to secure our beautiful Nedge mares before the storm began. Furious gusts of wind were succeeded by clouds of red and burning sands, whirling round with fierce impetuosity, and overthrowing or burying under their drifted mountains whatever they encountered. If any part of the body is by accident exposed to its touch, the flesh swells as if a hot iron had been passed over it. The water intended to refresh us with its coolness was quite hot, and the temperature of the tent exceeded that of a Turkish bath. The tempest lasted ten hours in the greatest fury, and then gradually sunk for the following six; another hour and we must all have been suffocated. When at length we ventured to issue from our tents, a dreadful sight awaited us;

five children, two women, and a man, were extended dead on the still burning sand; and several Bedouins had their faces blackened and entirely calcined, as if by the action of an ardent furnace. When any one is struck on the head by the simoom, the blood flows in torrents from his mouth and nostrils, his face swells and turns black, and he soon dies of suffocation. We thanked the Lord that we had not ourselves been surprised by this terrible scourge in the midst of the desert, but had been preserved from so frightful a death.

A. De Lamartine.

THE HUMAN FACE.

A great poet speaks of "the human face divine," and the expression, we think, is exceedingly graphical and happy. The face of man is of itself sufficient to announce him lord of the creation. There is a beauty and a dignity in the countenance of man, and more especially in that of virtuous men, which are given to no other created being. This is true, even of the face of a sleeping human being, or of one newly dead. But the human face owes its greatest beauty to its striking and various powers of expression. Every feeling of the heart, every conception of the intellect, has its appropriate expression in the human features. The eye and the mouth more especially have a wonderfully varied power of expression. From the most sweeping and terrible, to the most gentle and amiable emotions, those features can express every shade and every degree of feeling.

The eye is peculiarly susceptible of striking expressions, and the most crafty and self-possessed can scarcely, if at all, disguise their feelings from him who knows how to interpret the expression of their eyes. It was on this account that one of the ancients gave the singularly apt name to the eye, of being "the windows of the soul." It is not, however, merely as to their power of expression that the parts of the human face are deserving of admiration. There is an inimitable fitness in every one of them for the purpose for which it is designed. What human power and ingenuity, for instance, could have devised so complete a protection for that delicate and important organ, the eye, as is afforded by the eye-lashes ?

In considering the human features, we must make a remark upon the singular inconsistency with which mankind value themselves upon beauty of features, and yet pursue such courses as cannot fail to deface or destroy that beauty. Nothing is more common than to observe that the very same persons who value themselves upon beauty of features, give themselves up to the indulgence of pride and sullenness and envy and malice; feelings which render the most perfect beauty hateful on the instant, and ultimately sweep away every trace of it. If we would have pleasing features; we must indulge only in amiable feelings. The most homely countenance has a portion of dignity, and virtue and kindly feelings can incredibly increase that portion; while a a single bad feeling or vicious passion will throw an almost demoniac air over the most lovely conformation of features.

To pride ourselves upon mere beauty of features is, of all kinds of vanity, the most contemptible and ill-founded; for in the production of that beauty we had no share. But in the indulgence of virtues and amiable feelings we can exercise a power. And, therefore, the features which beam with justice, benevolence, and good humour, are really creditable to him who possesses them, and a just ground of self-respect, and self-gratulation. This is the truest and most estimable beauty of features; a reflection and an evidence of *internal* beauty; beauty of heart.

Let, then, none of our young readers ever puff themselves up with that vain pride which personal beauty excites in ignorant minds. But let them diligently and constantly strive to *be* good, in order that they may also *seem* so. For they may rest assured, that they can never *look* good unless they *are* good, and that they can never look *beautiful* unless they look good.

ADVENTURE WITH A SERPENT.

The following account of an adventure with a cobra di capello, or hooded-snake which occurred to a gentleman who was reposing under a tamarind tree alone, after a day's shooting, will be read with interest:—"I was roused by the furious baying of my dogs; on turning round, I beheld a snake of the cobra di capello species, directing its course to a point that would bring it very close upon my position. In an instant I was upon my feet. The moment the reptile became aware of my presence, in nautical phraseology, it boldly brought too, with expanded hood, eyes sparkling, neck beautifully arched, the head raised nearly two feet from the ground, and oscillating from side to side, in a manner plainly indicative of a resentful foe. I seized a short bamboo, left by one of the bearers, and hurled it at my opponent's head. I was fortunate enough to hit it beneath the eye. The reptile immediately fell from its imposing attitude, and lay apparently lifeless. Without a moment's reflection, I seized it a little below the head, hauled it beneath the shelter of the tree, and very coolly sat down to examine the mouth for the poisoned fangs of which naturalists speak so much. While in the act of forcing the mouth open with a stalk, I felt the head sliding through my hand; and to my utter astonishment became aware that I now had to contend against the most deadly of reptiles in its full strength and vigour. Indeed I was in a moment convinced of it; for as I tightened my hold of the throat, its body became wreathed round my neck and arm. I had raised myself from a sitting posture to one knee; my right arm, to enable me to exert my strength, was extended. I must, in such an attitude, have appeared horrified enough to represent a deity in the Hindoo mythology, such as we so often see rudely sketched on the portals of their native temples. It now became a matter of self-defence. To retain my hold it required my utmost strength to prevent the head from escaping, as my neck became a purchase for the animal to pull upon. If the reader is aware of the universal dread in which the cobra di capello is held throughout India, and the almost instant death which invariably follows its bite, he will, in some degree, be able to imagine my feelings at that moment; a shudder, a faint kind of disgusting sickness pervaded my whole frame, as I felt the cold clammy fold of the reptile's body tightening round my neck. To attempt any delineation of my sensations, would be absurd and futile; let it suffice, they were most horrible. I had now almost resolved to resign my hold. Had I done so, this account would never have been written; as no doubt the head would have been brought to the extreme circumvolution to inflict its deadly wound. Even in the agony of such a moment, I could picture to myself the fierce glowing of the eyes, and the intimidating expansion of the hood, ere it fastened its venomous and fatal fangs upon my face or neck. To hold it much longer would be impossible. Immediately beneath my grasp, there was an inward working and creeping of the skin, which seemed to be assisted by the very firmness with which I held it; my hand was gloved. Finding in defiance of all my efforts, that my hand was each instant forced closer to my face, I was anxiously considering how to act in this horrible dilemma, when an idea struck me, that, was it in my power to transfix the mouth with some sharp instrument, it would prevent the reptile from using its fangs, should it escape my hold of it. My gun lay at my feet, the ramrod appeared the very thing required, which, with some difficulty, I succeeded in drawing out, having only one hand disengaged. My right arm was now trembling from over-exertion, my hold becoming less firm, when I happily succeeded in passing the rod through the lower jaw up to its centre. It was not without considerable hesitation that I suddenly let go my hold of the throat and seized the rod in both hands; at the same time bringing them over my head with a sudden jerk, disengaged the fold from my neck, which had latterly become almost tight enough to produce strangulation. There was then little difficulty in freeing my right arm, and ultimately throwing the reptile from me to the earth, where it continued to twist and writhe itself into a thousand contortions of rage and agony. To run to a neighbouring stream, to lave my neck, hands, and face, in its cooling waters, was my first act after despatching my formidable enemy."

Asiatic Journal.

FASHIONABLE DINNER PARTY IN ABYSSINIA.

When Bruce, the celebrated traveller, first gave an account of the Abyssinians eating the raw flesh of a live animal, it was almost universally regarded as either a mistake or a wilful misrepresentation. His testimony has, however, been since amply corroborated by other travellers. The mode of supplying *brinde*, or raw meat to the guests in the fashionable parties at Gondar, the capital, has not been very generally understood. When the company have taken their seats at table, a cow or bull is brought to the door, whose feet are strongly tied; after which the cooks proceed to select the most delicate morsels. Before killing the animal, all the flesh on the buttocks is cut off in solid square pieces, without bones or much effusion of blood. Two or three servants are then employed, who, as fast as they can procure *brinde*, lay it upon cakes of teff placed like dishes down the table, without cloth or anything else beneath them. By this time all the guests have knives in their hands, and the men prefer the large crooked ones, which in the time of war they put to all sorts of uses. The company are so ranged that one gentleman sits between two ladies; and the former with his long knife begins by cutting a thin piece, which would be thought a good steak in England, while the motion of the fibres is yet perfectly distinct. In Abyssinia no man of any fashion feeds himself or touches his own meat. The women take the flesh and cut it lengthwise like strings, about the thickness of one's little finger, then crosswise into square pieces somewhat smaller than dice. This they lay upon a portion of the teff bread, strongly powdered with black pepper, or cayenne, and fossil salt, and then wrap it up like a cartridge. In the meantime the gentleman having put up his knife, with each hand resting upon his neighbour's knee, his body stooping, his head low and forward, and mouth open, very like an idiot, turns to the one whose cartridge is first ready, who stuffs the whole of it between his jaws at the imminent risk of choking him. This is a mark of grandeur. The greater the man would seem to be, the larger is the piece which he takes into his mouth; and the more noise he makes in chewing it, the more polite does he prove himself. None but beggars and thieves, say they, eat small pieces and in silence. Having dispatched this morsel, which he does very expeditiously, his neighbour on the other hand holds forth a second pellet, which he devours in the same way, and so on till he is satisfied. He never drinks till he has finished eating; and before he begins, in gratitude to the fair ones who have fed him, he makes up two small rolls of the same kind and form, each of the ladies opens her mouth at once, while with his own hand he supplies a portion to both at the same moment. Then commence the potations which, we are assured, are not regulated with much regard to sobriety or decorum. All this time the unfortunate victim at the door is bleeding, but bleeding little; for so skilful are the butchers that while they strip the bones of the flesh, they avoid the parts which are traversed by the great arteries. At last they fall upon the thighs likewise; and after the animal perishing from loss of blood, becomes so tough, that the unfeeling wretches who feed on the remainder, can scarcely separate the muscles with their teeth. In the description now given, we have purposely omitted some features which, it is not improbable, have been a little too highly coloured, if not even somewhat inaccurately drawn. But there is no reason to doubt the general correctness of the above delineation.

Chambers' Journal.

UPON SELF-CONDUCT, AS REGULATED BY CORRECT PRINCIPLES.

A knowledge of the Deity is an object of the first importance with every sensible and reflecting mind. And of the existence of the CREATOR and GOVERNOR of all things, we cannot possibly fail to be convinced, if we suffer ourselves to follow the testimony of our own eyes, thoughts, and feelings. All NATURE proclaims the divine truth. Next to the knowledge of God it is of supreme importance to exert all our faculties to do what is "acceptable and well-pleasing unto Him." As Religion is the *Mother* of all moral excellence, she is the source of all true honour and happiness. Without a *knowledge* of God, a devout attachment to our universal Lord and benefactor, we can only wander in error; and unless we cherish that knowledge and attachment, and are acquainted with the consolations of piety, and possess that tranquillity on whose basis true happiness is founded, the essential design of our creation cannot be fulfilled.

The *Knowledge* of RELIGION is the foundation of WISDOM;

Virtue cannot exist without its aid, nor can *true* Happiness yield its inestimable produce, save in the fertile soil of Wisdom and Virtue. The end of Religion is to make us wiser and better, to improve, exalt, and perfect our nature; to teach us to love, imitate, and obey God; to extend our love and charity to our fellow creatures, according to our several stations and abilities; to govern and moderate our passions; and to regulate all our appetites by temperance.

We are so constituted by nature, as necessarily to require the assistance of each other, for our mutual support and preservation. SOCIETY is absolutely requisite for us—the bonds of which are love, charity, and friendship. In this respect we are all upon the same level, having mutually the same wants, and the same need of assistance. Every one, therefore, is bound by the "*Law of Nature*" to consider himself but as a part or member of that universal body, which is composed of all mankind; and that he was sent into the world for the purpose of promoting the good and welfare of his fellow-creatures, by treating them with love, charity and benevolence. To this duty the principles of common humanity oblige us. Nothing indeed can be more agreeable to a well-tempered disposition; nothing can afford it a more happy subject of reflection, than a reciprocal interchange of good offices; did we not, therefore, suffer covetousness, selfishness, discontent, and other evil passions, to over-rule this tendency, we should invariably experience its happy effects.

As the practice of this duty is the most certain method of advancing the true interests and welfare of SOCIETY, so no man, without acting contrary to the law of his being, the reason of his mind, and the natural bent of his affections, can wilfully do injury to another. And if, upon any private misunderstanding, or trifling provocation, which arises amongst men, each party would endeavour to appease, rather than exasperate the other, how much more happiness would be the result.

ON VALUE.

Gold and Silver are the most convenient metals to use as money, because they take up but little room in proportion to their value.

Hence they are called the precious metals. But why should Gold and Silver be of so much more value than Iron? For they are not nearly so useful. We should be very ill off without knives, and scissors, and spades, and hatchets; and those could not be made from anything as from iron; and silver and gold would make very bad tools indeed.

To understand this, you must remember that it is not the most useful things that are of the most value. Nothing is more useful than air or water, without which we could not live. Yet these are, in most places of no value, in the proper sense of the word; that is, no one will give anything in exchange for them, because he can have them without. In some places, indeed, water is scarce; and then people are glad to buy it. You may read in Scripture of many quarrels that arose about wells of water; because in some of the Eastern countries, water is so scarce that a well is a very important possession. But water is not more *useful* in those places where people are glad to buy it, than it is here, where, by the bounty of Providence, it is plentiful. It is the *scarcity* that gives it value, and where iron is scarce it is of great value. Some islands where our ships have visited, produce no iron; and the people there are glad to get a few nails in exchange for a hog. But, in most countries, iron, which is the most useful of all metals, is also, through the goodness of Providence, the most plentiful. But still it is of some value; because it must be dug from the mines, smelted in furnaces, and wrought into tools, before we can make use of it. If knives and nails were produced by nature ready made, and could be pulled up every where like pebbles, they would be of no value, because every one might get them for nothing; but they would be just as useful as they are now.

Scarcity alone, however, would not make a thing valuable, if there were no reason why any one should *desire* to possess it. There are some kinds of stones which are scarce, but of no value, because they have neither use nor beauty. You would not give anything in exchange for such a stone; not because you cannot easily get it, but because you have no wish for it.

But a stone which is scarce and very beautiful, may be of great value, though it is of no use but to make an ornament for the person. Such are diamonds, and rubies, and many others. Many people will work hard to earn money enough to buy, not only food and necessary clothing, but also lace and jewels, and other articles of finery. And they desire these things the more, because besides being beautiful to the eye, they are reckoned a sign of wealth in the person who wears them. A bunch of wild flowers will often be a prettier ornament than a fine ribband or a jewel; but a woman likes better to wear these last, to show that she can afford the cost of them, whereas the wild flowers may be had for the picking. There is no harm in people's desiring to be well dressed according to their station in life, but it is a pity that so many should be fond of expensive finery above their station, which often brings them to poverty. And often they spend money on ornaments, which would be better laid out in buying good useful clothes and furniture, and in keeping them clean. A mixture of finery with rags and dirt, is a most disgusting sight.

You understand now, I hope, that whatever is of value must not only be *desirable* for its use, or beauty, or some pleasure it affords, but also *scarce*; that is, so *limited* in supply that it is not to be had for nothing. And of all things which are desirable, those are the most valuable which are the most limited in supply, that is, the hardest to be got.

This is the reason why silver and gold are of more value than iron. If they had been of no use or beauty at all, no one would ever have desired them; but being desirable they are of greater value than iron, because they are so much scarcer, and harder to be got. They are found in but few places, and in small quantities. Gold, in particular, is obtained chiefly in the form of dust, by labourers washing off the sand of certain streams. It costs only as much in labour and other expenses to obtain fifteen pounds of silver, as to obtain one pound of gold; and this is the cause that one pound of gold will exchange for about fifteen pounds of silver.

But besides being desirable and being scarce, there is one point more required for a thing to have value; or, in other words, to be such, that something else may be exchanged for it. It must be something that you can *part with* to another person. For instance, *health* is very desirable, and is what every one cannot obtain; and hence we do sometimes speak of health as being of value; but this is not the strict use of the word value; for no one can give his health to another in exchange for something else. Many a rich man would be glad to give a thousand pounds in exchange for the healthy constitution and strong limbs of a poor labourer; and perhaps the labourer would be glad to make such a bargain; but though he might cut off his limbs he could not make them another man's; he may throw away his health, as many do, by intemperance, but he cannot *transfer* it, that is, part with it to another person.

On these elementary points the following questions may be usefully put, to fix the subject more in the mind:

1. Why is not air an article of value? Because, though it be very useful, it is to be *had for nothing*.

2. Why is some scarce kind of stone, that is of no use or beauty, not an article of value? Because, though it be not a thing that every one can get, no one *desires* to get it.

3. Why is a healthy constitution not an article of value? Because, though it be very desirable, and is not what every one can get, it is not *transferable*—that is, cannot be parted with by one person to another.

4. Why is a spade an article of value? Because it is desirable, as being of use; secondly, limited in supply, that is, it is not what every one can have for nothing; and thirdly, transferable, that is, one person can part with it to another.

5. Why is a silver spoon of more value than a spade? Because, though it be not more useful, it is more limited in supply, or harder to be got, on account of the difficulty of working the mines of silver.

When anything that is desirable is to be had by labour, and is not to be had without labour, of course we find men labouring to obtain it, and things that are of very great value will usually be found to have cost very great labour. This has led some persons to suppose that it is the labour which has been bestowed upon a thing that *gives* it value; but this is quite a mistake. It is not the labour which any thing has cost that causes it to sell for a higher price; but on the contrary, it is its selling for a higher price that causes men to labour in procuring it. For instance, fishermen go out to sea, and toil hard in the wet and cold to catch fish, because they can get a good price for them; but if a fisherman should work hard all night, and catch but one small fish while another had, perhaps, caught a thousand, by falling in with a shoal, the first would not be able to sell his one fish for the same price as the other man's thousand, though it would have cost him the same labour. It has now and then happened that a salmon has leaped into a boat by chance; but though this has cost no labour, it is not for that reason the less valuable. And, if a man, in eating an oyster, should chance to meet with a fine pearl, it would not sell for less than if he had been diving for it all day. It is not, therefore, labour that makes all things valuable, but their being valuable that makes them worth labouring for. And God, having judged in his wisdom that it is not good for man to be idle, has so appointed things by his providence, that few of the things that are most desirable can be obtained without labour. It is ordained for man to eat bread in the sweat of his face; and almost all the necessaries, comforts, and luxuries of life are obtained by labour.

Fourth Book of Lessons.

ON WAGES.

Some labourers are paid higher than others. A carpenter earns more than a ploughman, and a watchmaker more than either; and yet this is not from the one working harder than the other. And it is the same with the labour of the mind as with that of the body. A banker's clerk, who has to work hard at keeping accounts, is not paid so high as a lawyer or a physician. You see from this, that the rate of wages does not depend on the hardness of the labour, but on the *value* of the work done.

But on what does the value of the work depend? The value of each kind of work is like the value of anything else; it is greater or less according to the *limitation of its supply;* that is, the *difficulty* of procuring it. If there were no more expense, time, and trouble in procuring a pound of gold than a pound of copper, then gold would be of no more value than copper.

But why should the supply of watchmakers and surgeons be more limited than that of carpenters and ploughmen? That is, why is it more difficult to make a man a watchmaker than a ploughman? The chief reason is, that the education required, costs a great deal more. A long time must be spent in learning the business of a watchmaker or a surgeon, before a man can acquire enough of skill to practise; so that, unless you have enough to support you all this time, and also to pay your master for teaching you the art, you cannot become a watchmaker or a surgeon; and no father would go to the expense of breeding up a son a surgeon or watchmaker, even if he could afford it, if he did not expect him to earn more than a carpenter, whose education costs much less. But sometimes a father is disappointed in his expectation. If the son should turn out stupid or idle, he would not acquire skill enough to maintain himself by his business, and then the expense of his education would be lost: for it is not the expensive education of a surgeon that causes him to be paid more for setting a man's leg than a carpenter is for setting the leg of a table, but the expensive education causes fewer to become surgeons. It causes the supply of surgeons to be more *limited,* that is, confined to a few; and it is this limitation that is the cause of their being better paid. So that you see, the value of each kind of labour is higher or lower, like that of all other things, according as the supply is limited.

Some kinds of labour, again, are higher paid, from the supply of them being limited by other causes, and not by the cost of learning them, or the natural genius they require. Any occupation that is unhealthy, or dangerous, or disagreeable, is paid the higher on that account, because people would not otherwise engage in it. There is this kind of limitation in the supply of house-painters, miners, gunpowder-makers, and several others.

Some people fancy that it is unjust that one man should not earn as much as another who works no harder than himself. And there certainly would be a hardship, if one man could *force* another to work for him at whatever wages he chose to give. This is the case with those slaves who are forced to work, and are only supplied by their masters with food and other necessaries, like horses. So, also, it would be a hardship if I were to force any one to sell me anything, whether his labour, his cloth or cattle, or wheat, at any price I might choose to fix. But there is no hardship in leaving all buyers and sellers free; the one to ask whatever price he may think fit; the other, to offer what he thinks the article worth. A labourer is a seller of labour, and both ought to be left free.

Labourers often suffer great hardships, from which they might save themselves by looking forward beyond the present day. They are apt to complain of others, when they ought rather to blame their own imprudence. If, when a man is earning good wages, he spends all as fast as he gets it in thoughtless intemperance, instead of laying by something against hard times, he may afterwards have to suffer great want when he is out of work, or when wages are lower; but then he must not blame others for this, but his own improvidence. So thought the bee in the following fable:—

"A grass-hopper, half starved with cold and hunger at the approach of winter, came to a well-stored bee-hive, and humbly begged the bees to relieve his wants with a few drops of honey. One of the bees asked him how he had spent his time all the summer, and why he had not laid up a store of food like them? 'Truly,' said he, 'I spent my time very merrily, in drinking, dancing, and singing, and never once thought of winter.' 'Our plan is very different,' said the bee; 'we work hard in the summer to lay by a store of food against the season when we foresee we shall want it, but those who do nothing but drink, and dance, and sing, in the summer, must expect to starve in the winter."

Fourth Book of Lessons—Abridged.

HOW TO MAKE MONEY.

Do you complain that you have nothing to begin with? "Tom," you say, "has a farm, and Harry has one thousand dollars, but I have nothing." I say to you, look at your hands, and tell me what they are worth. Would you take one thousand dollars for them, or for the *use* of them throughout your life? If you can make half-a-dollar a-day with them, it would not be a bad bargain, for that sum is the interest of more than two thousand dollars. Money and land, therefore, are not the only capital with which a young man can begin the world. If he has good health, and is industrious, even the poorest boy in the country has something to trade upon; and if he be, besides, well educated, and have skill in any kind of work, and add to this, moral habits and religion, so that his employers may trust him, and place confidence in him, he may thus be said to set out in life with a handsome capital, and certainly he has as good a chance of becoming independent and respectable, and perhaps *rich*, as any man in the country. In one sense, "every man is the master of his own fortune." All depends upon setting out upon the right principles, and, among them, are these:—

1. *Be industrious.*—Time and skill are your capital.

2. *Be saving.*—Whatever it be, live within your income.

3. *Be prudent.*—Buy not what you can do without.

4. *Be resolute.*—Let your economy be always of to-day, and not of to-morrow.

5. *Be contented and thankful.*—A cheerful spirit makes labour light, and sleep sweet, and all around happy, all which is better than being *only rich*.

Youth's Friend.

OBSERVATIONS ON TIME.

When I was a young lad, my father one day called me to him, that he might teach me to know what o'clock it was. He told me the use of the minute-finger, and the hour-hand, and described to me the figures on the dial-plate, until I was pretty perfect in my part.

No sooner was I quite master of this additional knowledge than I set off scampering to join my companions, at a game of ring-taw; but my father called me back again;—"Stop, Humphrey," said he, "I have taught you to know the time of the day; I must now teach you to find out the time of your life."

All this was Dutch to me; so I waited rather impatiently to hear how my father would explain it, for I wanted sadly to go to my marbles.

"The Bible," said he, "describes the years of man to be three-score and ten or four-score years. Now, life is very uncertain, and you may not live a single day longer; but if we divide the four-score years of an old man's life into twelve parts, like the dial of the clock, it will allow almost seven years for every figure. When a boy is seven years old, then it is one o'clock of his life, and this is the case with you; when you arrive at fourteen years, it will be two o'clock with you; and when at twenty-one years, it will be three o'clock, should it please God thus to spare your life. In this manner you may always know the time of your life, and, looking at the clock, may perhaps remind you of it. My great grandfather, according to this calculation, died at twelve o'clock; my grandfather at eleven, and my father at ten. At what hour you and I shall die, Humphrey, is only known to Him to whom all things are known."

Never since then have I heard the inquiry, "What o'clock is it?" nor do I think that I have even looked at the face of a clock, without being reminded of the words of my father.

I know not, my friends, what o'clock it may be with you, but I know very well what time it is with myself; and that, if I mean to do anything in this world which, hitherto, I have neglected, it is high time to set about it. The words of my father have given a solemnity to the dial-plate of a clock, which it never would have possessed in my estimation, if these words had not been spoken. Look about you, my friends, I earnestly entreat you, and now and then ask yourselves, what o'clock is it with you.

Weekly Visitor.

DERIVATIVES OCCURRING IN SECTION VI.

ROOT AND MEANING.	DERIVATIVES AND MEANING.
Aer, the air	*Aer*iform, that which is in the form of air
Arche, beginning, government	*Archie*piscopal, belonging to an Archbishop Mon*archy*, government under one rule
Cado, (cid. in compounds,) I fall	In*cid*ent, an event
Carbo, carbonis, a coal	*Carbon*ic, belonging to *carbon*, which is the pure inflammable part of charcoal
Densus, thick, close	*Dens*ity, compactness
Dominor, I bear rule	Pre*domin*ate, to prevail
Frico, I rub or chafe	*Fric*tion, the act of rubbing
Fulcrum, a stay or prop	*Fulcrum*, the prop by which a lever is sustained
Gennao, I produce	Hydro*gen*, one of the principles of water Oxy*gen*, vital air Nitro*gen*, the base of saltpetre
Gravis, heavy	*Grav*ity, weight; *gravit*ation, tendency to the centre of the earth
Germino, I branch out, or bud	*Germin*ate, to sprout, or shoot forth
Globus, a ball	*Glob*ule, a minute round particle of matter
Gramma, a letter	Dia*gram*, a mathematical drawing
Haereo, I stick, haesus, stuck	Co*hes*ion, striking together In*her*ent, existing in
Hudor, water	*Hydr*ogen, one of the principles in water
Ignis, fire	*Ign*ite, to set on fire
Inertia, sloth, a lying still	*Inertia*, a principle in bodies by which they persist in their motion or rest, &c.
Kuklos, a circle	*Cyl*inder, roller
Metron, a measure	Hydro*meter*, a measure for the gravity of water and other fluids

Os, ossis, a bone	*Oss*ify, to change into a bony substance
Oxus, sharp, acid	*Ox*ide, a substance containing oxygen
Pendeo, I hang, pendo, I weigh	*Pend*ulum, a weight vibrating at the end of a rod
Pleo, I fill, pletus, filled	Im*ple*ment, utensil, a tool
Rego, I rule	*Reg*al, royal, kingly
Scriptus, written	Tran*script*, a copy
Tener, tender; tenuis, small	Ex*tenuate*, to palliate
Tuber, a bunch	Pro*tuber*ance, something swelling above the rest
Voco, I call, vocatus, called	Ad*vocate*, to plead for another
Zoon, an animal, a living creature	*Azot*ic, belonging to *azote* [or nitrogen], a principle that destroys animal life

SECTION VI.

ELEMENTARY SCIENCE.

OF MATTER AND ITS PROPERTIES.

Matter is a term applied to all things which are supposed to possess substance. We learn that things possess substance, through our senses, sometimes aided by philosophical experiment. Matter is organic when it possesses organs or organised parts for sustaining living action. Matter is inorganic when it has no organised parts, to sustain living action. Animals and plants are organic matter; a stone is inorganic matter.

Portions of matter are called bodies. The air, water, the earth —a stone, a ball, an animal, a tree,—any substantial thing, which we can distinguish from other things,—are bodies. The qualities which bodies possess are called their *properties*. And all bodies of whatever kind, whether solid, liquid, or æriform, are accounted to possess the following properties: Impenetrability, Extension, Figure, Divisibility, Inertia, and Attraction.

1. **Impenetrability** is that property whereby a body excludes every other from the place which itself possesses; so that no two bodies can occupy the same space at the same time. Thus, even a pin cannot be inserted into a pin-cushion, nor the finest needle into a piece of linen, unless some room, however small, be made for its admission. The particles of *liquid* bodies are more easily displaced than those of solids; but such bodies are not, on that account, less *impenetrable;* because no other body can at the same time occupy the place of a liquid any more than that of a solid body. Thus, if a stone be put into a vessel containing water, part of the liquid will rise in order to make room for the stone; nor is air itself less impenetrable. Plunge a phial into a

basin of water, and the entry of the water into the phial will be shown by the gurgling noise, with which the air, formerly in the phial, issues forth in bubbles, in order to make way for the water.

2. **Extension** is another general property of bodies, that is, they all possess *length*, *breadth*, and *depth*. A little reflection will satisfy any one that every body, whether solid or fluid, whether a square box, a round ball, or the most slender hair, possesses each of these dimensions. *Heighth* and depth are the same dimensions, considered in different points of view. When a body is measured downwards, it is said to be so many feet deep; when measured upwards, it is said to be so many feet high; and *width* is in like manner another name for breadth.

3. **Figure** is the shape or form of a body. Everything which is possessed of length, breadth, and depth must have form of some kind or other.

4. **Divisibility.** By this is meant the susceptibility of being divided into an indefinite number of parts. There is no particle of matter so small, that we may not conceive it divisible into still smaller parts, were we possessed of proper implements for this purpose. The actual divisibility of bodies may be illustrated by an endless variety of examples. It is said a single pound of wool may be spun so fine as to extend nearly 100 miles in length; and that a single ounce of silver, when gilt with eight grains of gold, may be drawn into a wire 13,000 feet long. The same property of matter is obvious in the case of sugar dissolved in a cup of tea; a small quantity gives, as every one knows, a flavour to the whole contents of the cup. In odoriferous bodies, we have a still more striking illustration of very minute particles of a body being separated from one another. Perhaps you may not be aware that the sensation of *smell* is, in every case, produced by particles called effluvia, which fly off from the odoriferous body, and come in contact with the nose of the individual who smells it. This, however, is undoubtedly the case, so that you can just as little smell a rose, if none of its *effluvia* come in contact with your nostril, as you can taste an apple without applying any part

of it to your tongue. Now these *effluvia* are not only so small, as to be quite invisible, but their excessive minuteness will still be better estimated when you consider how soon every part of a room is perfumed by a nosegay or a smelling-bottle, and the vast number of particles necessary for this purpose, while as yet there has not been the slightest *sensible* diminution, either in the bulk, or the weight, of the original body. Particles of water are never destroyed or lost, although they may disappear from our immediate observation. There may be a change, in point of form and quality, as well as of dimensions; a solid may be converted into a liquid, or a liquid may vanish into thin air; but not one created atom, (so far as we have reason to believe,) ever perishes or is annihilated. All continue, in one state or another, to fulfil the ends for which they were destined, by their all-wise Creator, in the system of his universe. The decay of animal or vegetable substances in the open air, or in the ground, is only a process by which the particles of which they were composed change their places, and assume new forms.

5. Inertia, or Inactivity, is that property of bodies by which they resist any change in their present state. When at rest, a body shows an inability or reluctancy to move, and will require force to put it in motion. When it is in motion, it will no less require force either to stop, to retard, or accelerate that motion. A stone thrown by the hand would continue to move for ever through space with unabated velocity, were it not for the resistance of the air, and the force of gravity (to be explained in a future article) by which it is brought to the ground. On account of the tendency which matter has to remain in the condition in which it happens to have been already placed, a great force is necessary to set a vehicle, like a waggon for example, in motion; but when once this is effected, it goes onward with comparative ease, so that in fact a strong effort is necessary before it can be stopped. If a person be standing in it when it is suddenly set agoing, his feet are pulled forward, whilst his body, obeying the law of inertia, remains where it was, and he accordingly falls backwards. On the other hand, if the vehicle be suddenly stopped, and the

individual be standing in the same position as formerly, the tendency which his body has to move forward—for it acquired the same motion as the waggon, by which it was borne along—will cause him to fall forward. Those who have seen horse-racing, may have observed that the horses shoot far past the winning-post before their speed can be arrested. This is also owing to the inertia of their bodies. Matter, of itself, is equally incapable of causing its own motion, or its own rest.

6. **Attraction** is another property of bodies, and one of the most important. It is that tendency of bodies to come together and unite, when brought into proximity with each other. Experience and observation demonstrate that this power of mutual attraction pervades all material things, and, though unseen except in its results, is ever present with us. It operates both in small particles, and large masses. In the former case it is called the *attraction of cohesion*,—that is, the quality in nature which causes matter to cohere or stick together. Were it not for the influence of this quality among the particles of the same body, they would fall off from each other, and the most solid mass would crumble into atoms. It is much stronger in some bodies than in others. In general it is more powerful among the particles of solid bodies, weaker among those of fluids, and least of all, or almost entirely wanting among elastic fluids, such as air and the gasses. It is this that gives to every drop of water its spherical form. A small quantity of water, for example, suspended on any small point, becomes a globule, because in that case the attraction of the particles towards their own centre is greater than the attraction of any neighbouring body. For the same reason when two drops touch each other, however slightly, in any one point, they immediately run together, and unite in one large globule. The operation of cohesive attraction, it has been said, is not equally strong in all bodies; and hence it is, that one solid is harder than another, one fluid is thinner than another. The bodies in which this attraction operates most powerfully are termed *dense* bodies; those in which it is weak, are said to be *rare*. Thus gold is a denser solid than wood; water is a rarer fluid than

quicksilver. It has often been asked as a puzzle among children, Whether a pound of lead or a pound of feathers is heaviest? Every one, acquainted with the real meaning of the question, knows that the weight in both cases is precisely the same; but the *dimensions* of the pound of feathers are greater than those of the pound of lead, because lead is a much denser or more compact body than feathers. It is by the weight accordingly that we are to judge of the density of a body. A dense body will of course be much heavier than a rare one of the same dimensions, on account of the greater quantity of matter which it contains.

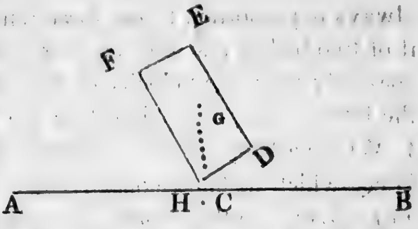
There is a curious species of cohesive attraction called *capillary attraction*, (that is to say, the *attraction of hairs*) because the instruments of this attraction are slender tubes like hairs; and it receives the above name from *capilla*, the Latin word for hair. A great variety of porous substances are capable of this kind of attraction, such as bread, sponge, sugar, &c., which are composed of natural capillary tubes, and illustrate this attraction. If a piece of sugar be placed so that its lowest corner touch the water, the fluid will immediately rise through the capillary tubes of the sugar till it reaches its remotest particle, and thus wet the whole mass. In the same manner, the wick of a lamp will carry up the oil to supply the flame, though the flame is several inches above the level of the oil.

GRAVITATION.

Cohesive attraction operates only in small particles, and has no perceptible operation, except between particles so near each other, that they are almost in actual contact. We are now to consider GRAVITATION, which operates even between masses which are placed at an immense distance, and with a force proportioned to their quantity of matter. Every stone, which being thrown into the air, falls upon the ground, is an example of this attraction; for what else is it which occasions its fall but the attraction of the earth? If there were no external force impelling or attracting it, why should it not, according to the general law of nature, explained in the preceding article under the name of *Inertia*, remain at rest? or, can any reason be assigned, why it should not as readily fly up to the sky, or diverge to the right hand or to the left? What you may call the stone's *weight*, you may suppose to be the cause, but this is not an inherent property in the stone, independent of its connexion with another body, but arises entirely from its tendency to fall to the earth. The discovery of the law of gravitation, which has explained many of the grandest phenomena of nature, was utterly unknown till the year 1665, and, glorious as it is, owed its origin to an incident of daily occurrence, and apparently of the most trivial nature.

Sir Isaac Newton, the celebrated English philosopher, sitting in his orchard one day, saw an apple fall from a tree. This single circumstance called up in his reflecting mind a long train of thought with regard to the cause of the occurrence. He could account for it on no other principle than the supposition of an attractive power in the earth. Carrying his reflections farther, he was satisfied that this attraction is not peculiar to the earth, but subsists among all bodies whatever; that as the earth attracts the bodies which come within the range of its influence, so itself and various other planets are, in like manner, attracted by the sun; and thus at length did this great man disclose to an astonished world, those laws by which the wisdom of the Almighty Ruler had governed his Universe, from the first hour of its creation, but which, during so many ages of its existence, "lay hid in night."

If the earth attracts all bodies near its surface, you may suppose that smoke, steam, air balloons, &c., which ascend through the air, in place of falling to the ground, are exceptions to the general law of nature. But in truth, these phenomena, when rightly understood, are in perfect accordance with it. If you throw a bit of cork into a tub of water, it immediately rises again to the surface, because the cork is lighter than the water; and if you pour more water into the tub, this will, for the same reason, displace the cork and force it to rise still higher. For the like reason, smoke and steam, and every vapour which is higher than the surrounding atmosphere, rise through it to a region where the air is of equal density with themselves. You will thus understand that a body lighter than the surrounding air ascends; that one of equal density remains suspended in it; and one of greater density falls through it. Even the falling body, however, encounters considerable resistance or obstruction from the air in its descent. If you throw a stone into a tub of water, it will fall more slowly than if the water were taken out of the tub; and if the air as well as the water were taken out of the vessel, the stone would descend more rapidly still. This resistance of the air is in proportion to the surface of body exposed to the resistance. A sheet of paper will fall much more quickly when wrapt up in a ball, than when its whole surface is exposed to the air. You may try the following simple experiment for yourselves:—A piece of paper of the same size and shape with a penny, will, of course, fall much more slowly through the air than the copper, the quantity of matter being much less; but if you lay the paper close upon the piece, so long as little air intervenes between them, they will continue to fall together. There is in every solid body a point, called the *centre of gravity*, about which all the parts exactly balance each other. If this point be supported, the body will be steady; and if not, it will fall till it is supported. Thus, let the line A B represent a table, and the figure C D E F a box; the box must fall, because its centre of gravity, C, is not supported, as is shown by the perpendicular line, G H, which is called (*the line of direction*) falling on the outside of the figure representing the box. The reason why a child or a drunk man falls is, that he does not keep his centre of gravity supported; or, in other words, because the line of direction falls without his body, instead of between his feet.



You will now also perceive the reason, why a ball *rolls* down a slope, while a square body only *slides* down. The ball can touch the declivity only in a single point, and, as that point is not in the line of direction, the centre of gravity is not supported, Where every part of a body is of equal density, the middle of the body, which is called *the centre of magnitude*, is also the centre of attraction. But because one part of a body is sometimes made of heavier material than another, the centre of magnitude is not always the centre of gravity. Hence, by putting a heavy substance in part of a body, the rest of which is composed of lighter material, many entertaining experiments may be shown, in which bodies refuse to remain at rest in what would appear to be their natural position.

LAWS OF MOTION.

Motion depends on a variety of circumstances:—1. From what was formerly said with regard to the *inertia* of matter, it appears that no body begins to move, except through the operation of some power, which keeps it in motion. This moving power, whatever it be, is called *force*. Thus, in playing hand-ball, the blow given by the hand is the force which impels the ball; the pulling of the horses is the force which draws a waggon. 2. When a body is acted upon by a single force, its motion, as might be expected, is always in a straight line, and in the direction of the force which moves it. 3. The *velocity* with which a body moves, that is, the distance which it moves in a given time, is always in proportion to the force which put it in motion. Thus, if of two bodies one goes eight miles in an hour, while the other goes only four, the velocity of the former motion is double that of the latter, and is occasioned by the operation of a double force. 4. Where a body is set in motion by the exertion of a single force, which instantaneously ceases, the motion of the body is *uniform*, or, in other words, the body moves throughout the whole of its course with the same velocity, and, if unobstructed, this motion will continue for ever. It is true, that a stone rolled along the ground by one impulse of the hand, goes every moment more and more slowly, until at length it stops altogether. But then, it will be remembered, that the stone, besides being exposed to the friction or rubbing of the earth, and the resistance of the air, is every moment acted upon by the force of gravitation. It may, perhaps, be thought, that the duration of the motion will depend upon the strength or weakness of the moving force. This, however, is quite a mistake. If a body receive only a gentle impulse, its motion, as we have seen, will be slow, but this slow motion, unless counteracted by some other force, will continue for ever. 5. The force with which a body in motion acts upon another body, is called *momentum*, and this depends upon two circumstances, namely, the quantity of matter or *weight*, and the quantity of motion or *velocity* of the moving body. Every one knows, by experience, that the heavier any body is, the greater is its force; but, by increasing the velocity of a lighter body, you may render its *momentum* much greater than that of a heavier one. Upon this principle, though you may place a pound-weight upon an earthen plate, without doing it the least injury, yet, if you let the weight fall from the height of only a few inches, it will, in consequence of the velocity which it has thus acquired, dash the plate to pieces. If you let a pound weight fall upon the floor from the height of only an inch and a quarter, it will strike the floor with a *momentum* equal to twice its weight. You will see, then, in order to ascertain the *momentum* of a body, that you must multiply the weight by the velocity. Thus, the *momentum* of a body of two pounds weight, moving at the rate of 16 feet in a second, is said to be 32, because 2 multiplied into 16, gives 32; the *momentum* of a body of one pound weight, moving at the rate of 32 feet in a second, is also 32; and these *momenta* are equal to one another. 6. Whenever one body acts upon another, it is met by *an equal and contrary action:* that is to say, if a body in motion strike another body, the resistance of the struck body is equal to the blow given by the striking body, and in the opposite direction. If I strike a table with my hand, my hand is equally struck by the table. In playing a game of marbles, when one marble is chucked away by another, that which gave the impulse is immediately stopt in its course, by the re-action of the one it displaces. —Without an acquaintance with that law of motion, by which action is always accompanied by a contrary reaction, you would be quite at a loss to explain, how a bird is enabled to support itself in the air. This is owing entirely to the reaction of the air, when struck by the wings of the bird. If the force with which the bird strikes the air below it, be equal to the weight of its own body, it will remain stationary; if it be greater, it will rise; if less, it will fall.

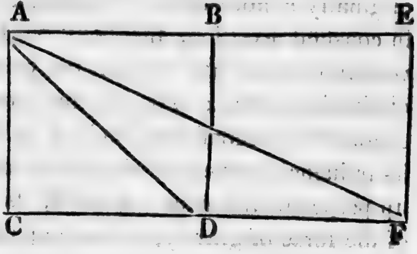
LAWS OF MOTION—(*Continued.*)

We are now to turn our attention to those motions, which are produced either by the *incessant exertion* of the same force, or by the *combined exertions* of different forces.—1. If the forces which set a body in motion, do not cease to exert itself at the moment when the body is set in motion, but continue in a state of incessant exertion during the whole of its course, the motion then will not be uniform but continually *accelerated;* or, in other words, the velocity of the body will become every moment greater and greater. This will explain to you the reason, why a falling body descends with so much greater velocity at the end than at the beginning of its fall. The cause of the accelerated motion of the falling body is this:—When a body falls from a height, the force of gravity, which sets it in motion at the first instant of its fall, would be sufficient to bring it to the ground with a uniform motion, though that force had instantly ceased. But the force of gravity operates, not in the first instant merely, but in every succeeding instant of the body's fall. The force, therefore, which it receives at the second instant, is added to that of the first, and the force with which it falls in the last instant, is composed of all the forces which it received in every instant of its fall. It has accordingly been ascertained that heavy bodies descending from a height, by the force of gravity, fall 16 feet the first second of time, three times that distance in the second, five times that distance in the third, and so on in progression, according to the odd numbers, 7, 9, 11, &c. The space a body has fallen through in a given time is determined by the following mode of computation. Take the square of that number, (that is, the number multiplied by itself,) and multiply the square by 16, which is the number of feet fallen during the first second, and the result is, the amount of feet which the body altogether falls. For example, if a ball occupy 3 seconds in falling, we take the square of 3 which is 9; then we multiply 9 by 16, which gives 144 as the result, and that is the number of feet fallen. Again if we find that the ball occupy 4 seconds in falling, we take the square of four, which is 16, and multiply 16 by 16; the result is 256, which is the number of feet fallen. And so on, always following the same rule of computation.

2. If a body be, at the same instant, acted upon by two opposite but unequal forces, it will move in the direction of the strong force, but with a velocity diminished in proportion to the other.

3. If a body be put in motion, by a force which instantly ceases, and be at the same time, acted upon by an opposite force, which originally is not sufficient to prevail over the other, but continues in constant exertion, the body will have a continually *retarded motion* or, in other words, its velocity will be every moment diminished; till, at last, the counteracting and unceasing force will completely predominate, and the movement will take place under its influence in the opposite direction. Thus, if a stone be thrown up perpendicular from the earth, its motion will, in consequence of the force of gravity, be more and more retarded, until at length, in place of ascending, it falls back to the ground in the same line by which it rose. It is a circumstance well worthy of attention, that the stone descends in precisely the same time in which it ascended.—4. If a body be at the same instant, acted upon by two different but not directly opposing forces, its motion will not be entirely in the direction of either, but compounded as it were of both, and the body will accordingly move in a line between the two. Thus, if a body be at once acted upon by two equal forces, one of which would carry it directly south, and the other directly east, it will actually move in a south-east direction. To explain this by a diagram; if a ball, placed at the point A, be at the same time impelled by two equal forces, one of which, if operating by itself, would, in a second of time, carry it to the point B, in the direction A B, and the other would, in the same time, carry it to the point C, in the direction A C, it will move in the direction of the intermediate line A D, and arrive in a second at the point D. Suppose the two forces to be unequal, and that the force impelling

the ball in the direction A B is double the force impelling it in the direction A C,—here it is plain, that if the former force had acted alone, the ball would have reached the point E, in the same time that the latter force, if acting alone, would have carried it to the point C, which is only half the distance. Now, when both forces act together, the ball is, in the same time, moved to the point E, in the diagonal line A F. An attentive examination of the diagram will show, that, in combination, no less than when the forces acted separately, one of them has precisely double the effect of the other. The distance which the ball has moved from its original situation, by the force impelling it in the direction of A E, is obviously twice as great as the distance which it has moved by the force impelling it in the direction A B. It will also be seen that the motion, produced by two forces acting together, is not so great as that which is produced by the separate action of each; for the diagonal A F is obviously not equal to A E and F added together.



Circular motion is the result of two forces acting upon one body at the same time, by one of which it is impelled in a straight line, and, by the other, is drawn to a fixed point. Thus, when you whirl a stone round in a sling, it is acted upon both by that force, by which, if it were set free, it would fly off in a straight line, and by that which confined it to your hand, and prevents its escape—The point round which any body moves, is called its *centre of motion*. Thus the sun is called the centre of revolution of the planets.

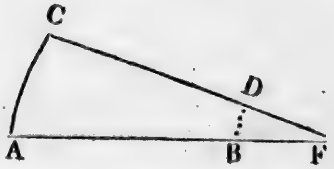
If two or more bodies move quick round the same centre, at different distances, within the same time, that which is most remote from the centre moves with the greatest velocity, because it is carried round in a large circle, in the very same time in which the others are carried round only in smaller circles. For the same reason, when a body revolves round its own axis, in proportion to the distance of any part of the body from the axis, the greater is the velocity of that part. This is a principle, which it will be necessary for you to keep carefully in mind, as it is a fundamental one in the construction of machinery.

MECHANICAL POWERS.

In entering upon the consideration of the mechanical powers, it will be necessary for you to remember the leading principle formerly explained, that, by increasing the velocity of a lighter and naturally weaker body, we may render its *momentum* much greater than that of a heavier and stronger one. The main purpose required in mechanical operations is to overcome, oppose, or sustain, a certain resistance of force. The ability of applying force by the human hands, without the aid of instruments or machines, is very limited. In almost all our operations of art, it is found necessary to call in the aid of instruments or machines of some kind. But, even in this department, in which so much has been done, that is gratifying to the pride of man, there is also much to remind him of his impotence, and to teach him an instructive lesson of humility. It deserves to be remembered that what we gain in *power* by the invention of any new machine, or the improvement of any known one, we always lose in *time*. Thus where, without the assistance of machinery, I am just able to raise a weight to a certain height in one minute, I may, by means of machinery, be enabled to raise ten times that weight to the same height; but no mechanism, that ever has been invented, has put it in my power to raise that increased weight so high in one minute, or in shorter time than ten minutes. All the instruments which mankind have adopted for their use, act upon certain fixed principles in nature, which a long course of experience and scientific investigation has developed. There are six mechanical powers, one or more of which enter into the composition of every machine,—the Lever, Wheel and Axle, Pulley, Inclined Plane, Wedge and Screw.

The Lever is the most simple of all these. It is an inflexible rod or bar of iron, wood, or any other material, which by moving upon or about a prop or *fulcrum* (as it is called,) is of use in raising weights to a small height. It derives its name *lever* from a French word signifying to raise. The lever is of three kinds. The first kind is that in which the fulcrum or support is placed between the power and the weight. It is often used for the removal of heavy pieces of timber. For this purpose one end of the bar is forced beneath the timber or body to be moved, and resting it upon a block or stone as a fulcrum, the workmen apply their strength to the further extremity of it, by which the body is at length removed. It is a general rule that "the force of the lever increases in proportion as the distance of the power from the fulcrum increases and diminishes in proportion as the distance of the weight from the fulcrum diminishes." The ordinary balance for weighing goods, is generally accounted a lever of this kind. There may be, and indeed there are two kinds of balances. In the one, various weights are employed; in the other, all articles are weighed by the same weights, but placed at different distances from the fulcrum. Of this last kind is *the steel-yard*. This is a lever having two arms of very unequal lengths. At the extremity of the shorter arm is suspended the articles to be weighed, the longer arm is divided into a number of parts, each of which is equal to the shorter arm. A pound weight, placed in the first division from the fulcrum of the longer arm, will balance an article of that weight suspended at the extremity of the other; the same weight placed at the second division will balance an article of 2 pounds weight; and when placed at the tenth division for example, will balance an article of 10 pounds weight.

The second kind of lever is that in which the fulcrum is placed at one extremity, the power is applied at the other, and the weight to be raised is between the fulcrum and the power. In this lever the power gained is just so much the greater, as the distance between the point at which the power is applied, and the fulcrum, is greater than the distance between the point at which the weight is suspended and the fulcrum. Thus, let A F represent a lever of this kind, having its fulcrum at the extremity F, and a force applied at the other extremity A, for the purpose of raising a weight suspended at B, between the other two parts.



Thus, because the point A is four times as much removed from F, the centre of motion, as the point B is, it has four times its velocity, and passes through the large space A C, in the very same time that B passed through the space B D, which is only a fourth part of A C; and therefore a weight of one pound placed at A, will have as much power as four pounds at B.

When you raise up at one end a bench, upon which a person is sitting, it acts as a lever of the second kind; so that, if you apply your strength to the farther extremity, you raise it with much more ease than if you were to attempt to raise it at a part of the bench more nearly approaching to that on which the person sits.

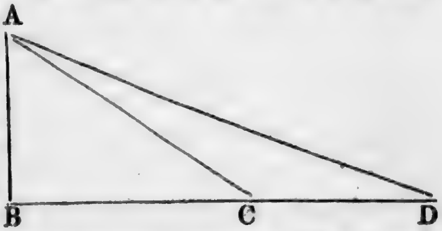
3d. The third kind of lever is that, in which the fulcrum is placed at one extremity, the weight to be raised at the other, and the power between them. In this case there is an evident *loss* of force by the position of the power. You will readily believe that a lever of this kind is never employed except in cases of absolute necessity, as for example, in raising a ladder against a wall. Anatomists have shown that the lower part of the human arm is a lever of this kind having the elbow for the fulcrum; and though, by such an arrangement, force is obviously lost, this is far more than counter-balanced by other most important advantages.

II. THE WHEEL AND AXLE is another mechanical power by which weights are raised to a far greater height than by the bar. Upon the principle formerly explained, that every part of a revolving body moves with a velocity proportioned to its distance from the axis, it must be quite plain that any part of the circumference, or outer rim, of a wheel moves with greater velocity than any point of its axle; and consequently that a force applied to the wheel, has more power than the same force applied to its axle; in proportion as the circumference or diameter of the wheel is greater than that of the axle. If the diameter of the wheel be ten times that of the axle, any power applied to the wheel will have the same power, as ten times that force applied to the axle. You have probably seen water drawn out of a deep well by means of a bucket fastened to a rope, which coils round a slender revolving cylinder (or round bar) of wood or iron, that is put in motion by force applied to a handle fixed to the end of it, like the handle of a common hand mill. Here it is evident that the person's hand which is applied to the handle, moves round a wide circle in the same time that each point of the cylinder, round which the rope is coiled, describes only a small one; and that power accordingly is gained in proportion as the circle described by the hand is greater than the circumference of the cylinder. Had the same force been applied to the cylinder itself instead of the handle, the bucket might not have moved at all. The more you increase the length of the handle, and consequently enlarge the circuit of the hand, the more of course you increase the force. Various other inventions upon a similar principle have been devised under the name of capstans, windlasses, &c., such as are to be seen on board a ship or on a wharf.

III. THE PULLEY is another very convenient mechanical power, which enables us to elevate a body to a considerable height, without being under the necessity of ascending thither along with it. But the fixed pulley gives no increase of power. The hand which draws the weight, moves with no greater velocity than the weight itself; and accordingly, to balance each other, the power and the weight must be precisely equal. It is quite different, however, with regard to the *moveable pulley*, that is, one that, besides revolving round its own axis (as is the case with all pulleys), moves along with the weight. By means of one of these pulleys, the power is doubled, and, by a combination of them, may be greatly multiplied.

IV. THE INCLINED PLANE.—By this is meant nothing else than a slope or declivity, employed in order to render the ascent of a heavy body easier than it would have been in a perpendicular direction, when exposed to the full operation of the force of gravity. Of the application of this power, you may see daily instances, in the sloping planks, which are laid for the purpose of lowering or raising packages to or from a warehouse below the level of the street, or in removing a heavy barrel, &c., into or out of a waggon. Though the principle upon which the inclined plane operates, differs from that of the other mechanical powers already explained, yet in one essential point it agrees with it, namely, that the acquisition of power is purchased by the loss of time. No body, when laid on a declivity, will fall with the same velocity as when descending freely through the atmosphere. Thus, it is clear that a body will roll down the declivity A C with less velocity than it would fall in the perpendicular A B; and that in like manner it would roll down A D with less velocity than it rolls down A C. For the same reason, it will require less force to keep it on the declivity A D, or to make it ascend that line, than would be necessary with reference either to A C or A B.

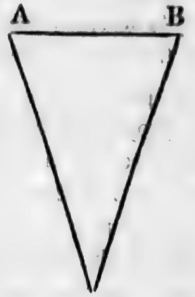
The power gained, accordingly, by the use of the inclined plane, is in proportion as the length of the declivity exceeds the height. Thus, because A C is twice the length of A B, and A D is three times the length of A B, a single pound weight suspended in the air at A, will be sufficient to sustain two pounds laid on the slope A C, or three pounds upon A D. Chisels and other sharp instruments sloped down to an edge on one side only, are accounted to act on the principle of the inclined plane.



It is by inclined planes that we reach the higher floors of a house from the ground, or attain other elevations. For all such purposes, the inclined plane is formed with steps to insure our safe footing. All stairs or flights of steps are inclined planes.

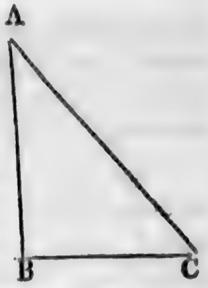
V. THE WEDGE is a piece of wood or iron, having a sharp edge, and growing continually thicker towards the base. This instrument is employed for cleaving solid masses asunder, to compress bodies more closely together, and to move great weights through small spaces. The power employed to force the wedge forward is either repeated blows with a mallet or hammer, or the gradual pressure of a weight. This mechanical power is founded on the principle of the inclined plane, which, in this case is moveable, and the load or weight it affects is at rest. When, therefore, the wedge slopes on both sides, it consists of two inclined planes joined together. Let

A B C represent the surface of this implement. The point C is inserted into the body to be cleft, and, by means of violent blows upon the base A B, the whole wedge forces its way. The less the breadth of the base A B is in proportion to the length of the two sides A C, B C the greater is the acquired power. It is calculated, accordingly, in theory, that if A C and B C taken together, be four times the length of A B, the power will be equal to four times the resistance; and if the wood cleave at a distance before the wedge, the advantage acquired is computed to be still greater—the divided parts acting as levers assist in opening a passage for the wedge. Axes, chisels, and other sharp instruments act on the principle of the wedge. It is one of the many proofs of wisdom displayed in the creation, that the beaks of birds are formed in the shape of wedges, for the purpose of enabling them to dig into the ground or into the bark of trees, and to break the shells of fruit.



VI. The Screw is the last mechanical power we have mentioned. It consists of two parts, the *screw* more properly so called, and the *nut*. The *screw* consists of a projecting ridge winding in a spiral direction, round a central cylinder or spindle, in the same manner as the hop, for instance, turns round a pole. This protuberance is called its *thread*. The screw has no power by itself. It can operate only by means of pressure against the threads of another screw which overlaps and holds it. This is provided in the nut, the inside of which is cut out in spiral grooves so as to fit with perfect exactness with the screw which has to work in it. The screw acts upon the principle of an inclined plane, by which the body, in place of rising in a straight line, gradually ascends by a spiral curve to the top.

Cut a piece of paper in the shape of the triangle A B C, of which the side A C obviously represents an inclined plane; apply the side A B to a round stick, and wrap the paper round it, and you will see at once that the line A C, representing the inclined



plane has become the spiral of the screw. When a *nut* is not used, the power must be applied by a lever passing through the head of it as in the augur, gimlet, &c. The screw therefore acts with the combined power of the lever and inclined plane, so that it is really a compound machine. In the inclined plane, as has been seen, the less it is inclined, the more easy is the ascent, though the slower is the process of rising to a certain elevation. In applying the same principle to the screw, it is obvious that the greater the distance is betwixt the threads, the greater or more rapid is the inclination, and hence the greater must be the power to turn it under a given weight.

THE PENDULUM.

The properties of the *Pendulum* are not only in themselves a curious subject of investigation, but also have acquired far greater interest and importance from their connexion with the measurement of time. This implement consists of a thread or rod with a weight attached to it, which vibrates (or moves alternately backward and forward) about a fixed point to which it is suspended. The following are some of its leading properties:—

1. If a pendulum be drawn aside out of its perpendicular direction, and then let go, it would by its gravity, not merely return into its perpendicular direction, but in consequence of the force which it has acquired during its fall, would ascend to its former height on the other side, and thus continue for ever to descend and ascend, were it not for the effect of friction and the resistance of the air. In the same manner, a body which has descended an inclined plane, will, by the force which it has acquired, ascend another equally inclined plane joining the former at the bottom. Thus boys when sliding, as they often do, upon small sleighs, down a hill with great rapidity, would find that were another hill close to the bottom, they would, by means of the velocity acquired in descending, easily ascend to nearly the same height. The Russians, in winter, accordingly pile up ice so as to form a declivity, sloping with a

smooth surface, and then commence another pile, which rises to nearly the same height but not quite. It again slopes down to the river, and again another commences, and so on. And they amuse themselves in sliding over them in sleighs made for the purpose.

2. The length of time which a pendulum takes to make a vibration, that is, to descend and ascend to its former height, depends upon the length of the string or rod. This fundamental principle may be easily ascertained by any one. If you take two strings of unequal length, with weights suspended to them, and make them vibrate, you will find the time in which the longer performs a vibration, to be greater than that which has been taken by the shorter one. If the one string be four times as long as the other, the shorter one will perform two vibrations in the time that the longer performs only one. Hence it is, that by shortening the pendulum of a clock, you make it go faster, and by lengthening it you make it go slower. Owing to the power of heat to expand most bodies, the pendulum of a clock is longer in summer than in winter, and hence the clock goes slower. To counteract as much as possible this vibration, great attention has been paid to the choice of the material of which the pendulum is made.

3. The time of the vibration does not, in the slightest degree depend upon the weight of the suspended body.

4. Neither is the time of the vibration in any degree affected by the height from which the pendulum is let fall. If you take two of equal length, and raising the one to a much greater height than the other, let both swing off at the same moment, they will perform their respective vibrations in precisely the same time.

MECHANICAL PROPERTIES OF FLUIDS.

A *fluid* is a body, the particles of which yield to any impression, and are easily moved amongst each other. Fluids are of two kinds: what are called *non-elastic fluids or liquids*, such as water, oil, quicksilver; and *elastic fluids*, such as the atmospheric air, vapours, and gasses of every description. It is the mechanical properties of *liquids* that are to occupy our attention at present. Liquids are very little susceptible of compression into smaller bulk than their natural state. In consequence of the attraction of cohesion operating less strongly in liquids than in solids, *gravity*, on the other hand, in liquids, has a more perfect operation. While gravity acts upon a solid body as one collective mass, it has a more independent operation upon each individual particle of a liquid body. Hence it is that a liquid always finds its level, and maintains a smooth and horizontal surface. All the particles of a liquid body, in consequence of this independent gravitation, press against each other not only downwards, but also sideways, even upwards. Were there no pressure sideways in liquids, why is it that we always see water run out of a vessel when an opening is made in one of its sides? This pressure, no less than that directly downwards, is the result of gravity, and is occasioned by the upper particles, in their attempt to descend, forcing aside those beneath them. It follows from these facts, that the lower an opening is made in the side of a vessel containing a liquid, the greater in proportion is the pressure with which it is forced out; and this is not affected by either the breadth or width of the vessel. But it was said, that the particles of liquids have a pressure not only downwards and sideways, but also upwards. If, into an opening made in the side of a vessel filled with any liquid, a tube be inserted, like the spout of a tea-pot, sloping upwards, the liquid will immediately ascend in the tube till it stand at the same height with the surface of the liquid in the vessel. This, however contradictory it may appear to the doctrine of gravitation, is in truth an additional illustration of it, as it is the consequence of the pressure from above, which immediately causes the fluid to issue at the only outlet left for its escape. The principle that a fluid will always find its own level, is one of the greatest practical importance. It is by a knowledge of this law of nature that water is brought from a great distance in pipes, and distributed over a whole town, not only in the lower, but in the upper floors of the houses, provided they be not above the level of the surface of the water in the reservoir from which it flows. From ignorance of this principle, or of the mode of its application, the ancients thought themselves under the necessity of erecting magnificent and costly aqueducts, over which the water was conducted.

SPECIFIC GRAVITY.

It is in consequence of the pressure of the particles of a fluid, that any lighter body immersed in it is borne up to the surface, a body of equal weight floats in it, and a heavier one is retarded in its descent by the resistance of the fluid depriving the body of part of its gravity. In consequence of this resistance every body suspended in water loses as much of its weight (which it had when weighed in air), as is equal to the quantity of water displaced by it. It is also plain that every body that sinks in water displaces as much of the fluid as is equal to its own bulk. It is bulk alone, not weight, which is in this matter to be considered. These properties of fluids have been of great service in ascertaining what is called the *specific gravity* of bodies. Two substances are said to have an equal specific gravity, when a quantity of the one has precisely the same weight with a quantity of the other of the same bulk. On the other hand, if a cubic inch, for example, of one substance, weigh more than a cubic inch of another, the former is said to have a greater specific gravity than the other. You will readily perceive, that it must be an extremely useful thing to adopt some one substance as a standard, by which the specific gravity of all others may be compared. Now, the properties we have been considering, as well as some other circumstances connected with water, have led to its general adoption for this purpose. Its use in this way was originally suggested to an ancient philosopher of the name of Archimedes. Hiero, the king of Syracuse, had put into the hands of a workman a certain quantity of gold, of which he was to make a crown for him. When the crown was finished and given to the king, he had reason to suspect that his gold had been adulterated, and applied to Archimedes for his assistance in detecting the imposture.

After many attempts for this purpose, the philosopher was about to abandon the project altogether, in despair of being able to accomplish it, when a fortunate incident occurred, which led to its ultimate success. Stepping into the bath one day, as was his custom, he happened to observe, that the water rose as he plunged into it, and that it did so in proportion to the bulk of his body. He immediately perceived, that any other body of the same bulk would have raised the water equally, but that one of equal weight, if of less bulk would not have produced so great an effect. To his discerning mind this suggested a solution of the question, which he had undertaken to solve for the king; and he was so overjoyed, that he is said to have run into the street, just in the state in which he had leaped out of the bath, exclaiming, "I have found it out, I have found it out." He now got two masses one of gold and the other of silver, each of equal weight with the crown, and having filled a vessel very accurately with water, plunged into it first the silver mass, and marked the quantity of water which overflowed. Next he plunged the gold mass, and found that a less quantity now overflowed than before. Hence he inferred that, though the masses were equal in point of weight, the bulk of the silver was greater than that of the gold. He then plunged the crown into the water, and found that it displaced more of the fluid than the gold had done, and less than the silver, which led him to infer and report to the king, that it was neither pure gold nor pure silver, but a mixture. To ascertain the specific gravity of fluids, recourse is now generally had to an instrument called the hydrometer. This instrument is so constructed, that the specific gravity of the liquid is estimated by the depth to which the hydrometer sinks in it. The farther this instrument sinks, the lighter is the specific gravity. It is upon a similar principle, that, in order to ascertain the strength of brine for salting meat, it is not uncommon to place an egg in the water, and continue to put salt into it until the egg swim. Water, as the standard for measurement, is said to be 1. When therefore any body, bulk for bulk, is double the specific gravity of water, it is called 2, and so on to 3 and 4 times, up to 22 times, which is the specific gravity of platinum, the heaviest known substance. Any body of greater specific gravity than water, will sink on being thrown into water; but it will float on the surface, if its specific gravity be less than that of water. Water is of a greater specific gravity than spirits. A body therefore which will float on water may sink in spirits. Although water has thus the greatest power of buoying up, it is in ordinary language called *weak*; and spirits, the lighter they are, are called the more *strong*.

MECHANICAL PROPERTIES IN AIR.

Aeriform fluids differ from liquids, principally in respect of the superior elasticity of the former, which are hence distinguished by the name of *elastic fluids*. Atmospheric air and all the various kinds of gases are of this description. The *mechanical* properties of all elastic fluids are the same. Though the air, by which we are continually surrounded, and without which we would cease to live, is invisible to the eye, its presence is sufficiently manifested by its effects. By the motion of a lady's fan you immediately feel that you have put it in agitation, by briskly moving a switch you hear it sound, in pushing the rammer of a pop-gun, plugged at the opposite extremity, you feel its resistance; by immersing a phial under water, you see the bubble which it forms in making its escape. We are now to consider a few of its mechanical properties—1. Air is *compressible*, that is to say, may by pressure be made to occupy less room than in its natural state. Thus, in discharging a pop-gun, the rammer, in consequence of the compression of the air in the tube is able to advance a little way before it expels the plug; and when a wine-glass is immersed with the mouth downwards in a vessel of water, the water will, from the same cause, ascend to a small height in the glass.—2. Air is remarkably *elastic;* that is, after being compressed, it, as soon as the pressure is removed, resumes its former dimensions. Squeeze a blown bladder, and whenever you remove your hand it at once regains its original bulk. Throw it on the ground, and the elasticity of the air pent up in it will display itself, by the force with which it rebounds.—3. Air, like every other fluid, is *heavy*, and *presses equally* in all directions. From the equality of the pressure upon all bodies, and upon all parts of the same body, it is not easily felt or perceived; but whenever it is partially removed from a body, (which is easily done by an instrument called an air-pump,) then its effects upon the other parts of the body are clearly discerned. Thus, if you completely fill a wine-glass with water, and cover it with a piece of paper, then place the palm of your hand over it, so as to hold it tight and accurately even, you may afterwards turn it upside down, and remove your hand from the paper, without spilling a single drop of water. Upon the same principle, take a common tea-cup, and burn some paper in it by which the air within it will be made to expand; invert the cup in a saucer containing water; when the air cools it will return to its former density, and thus leave within the cup what is called a *vacuum*, that is to say, an empty space containing no air; in consequence of which, the pressure of the external air from below will force up a greater portion of the water into the cup to fill up the void. These instances will be sufficient to illustrate the *upward* pressure of the air; its pressure in other respects can be no less easily shown by means of the air-pump. In consequence of the *downward* pressure of the atmosphere, its lower strata are much denser than the higher. The difference in this respect is very considerable between the air at the top of a high mountain, and in the valley below. In consequence of the greater density of the atmosphere in the lower regions, than in the higher, it is far better adapted to the condition of man. The rarity of the air above has been found productive of great inconvenience to those who ascend high mountains or in air balloons, by producing great difficulty of breathing, bleeding at the nose, &c. The atmospheric air is 800 or 900 times lighter than water; but from its great height, (being supposed to extend at least 45 miles from the earth,) its pressure upon the earth's surface, you may believe, is extremely great, and is computed at fifteen pounds upon every square inch.

COMPONENT PARTS OF ATMOSPHERIC AIR.

Atmospheric air was long regarded as an element, and still retains the name in ordinary language; it has, however, been clearly shown to be a compound substance. This discovery we owe to a philosopher of the name of *Scheele* (*Sheel*). It consists of two elastic fluids, called the Oxygen and Nitrogen gases, with which are mixed up a small portion of another gas called carbonic acid, and vapour derived from the evaporation of water from the earth's surface. The carbonic acid gas, and the vapour, are considered as having only an accidental connexion with the atmosphere, and not as essential constituent parts of it. The air may therefore be said to be composed of the oxygen and nitrogen gases, of which, rather more than four-fifths are nitrogen. These substances are very different from each other in their qualities.—I. OXYGEN gas, though the smaller in point of quantity, is by far the more efficacious of the two ingredients of the atmosphere. It is one of the most generally diffused and most powerful chemical agents in nature. It forms an essential component part of both air and water, and is to be found in almost all animal, vegetable, and mineral substances. It is invisible, and has no taste nor smell; it is heavier than atmospheric air, being in the proportion of about 123 to 20. It is this ingredient which gives the atmosphere its two most beneficial powers of supporting animal life and combustion. If the air be deprived of its oxygen, it is rendered quite unfit to maintain either respiration or combustion for a single moment. By both of these processes oxygen is consumed, and hence a frequent renewal of the air is absolutely necessary to the continuance of either. When a number of persons meet in a small room, they soon feel the necessity of admitting fresh air, and have recourse to open windows for this purpose. Upwards of 100 individuals on one occasion lost their lives, by being confined together for a single night at Calcutta, in consequence of the barbarous order of the Nabob, in a small apartment known by the name of the black-hole. You may perhaps be surprised to hear that fish stand no less in need of oxygen than other animals, in order to support life. If several of them be confined in a small vessel, from which all communication with the external air is excluded, they first become much agitated, and at length expire. If a glass vessel be put over a candle, the light will become gradually feebler, as the oxygen is consumed, and will at length die away. It is in consequence of the rapid supply of oxygen, that a fire burns so much more briskly, when exposed to a current of air.

II. NITROGEN gas, also known by the name of azotic gas, which is by far the largest ingredient of the atmosphere is invisible, and has no taste nor smell. It is lighter than atmospheric air, being in the proportion of about 97 to 100. It neither supports respiration nor combustion; so that an animal immersed in it immediately expires, and a candle ceases to burn. Were it not for its combination with the oxygen, the air would be too pure, and, affording too free a respiration, would, (it is supposed) be more than the lungs are fit to bear.

The Atmospheric Air, which is the result of the combination of these two gases, possesses the properties of the oxygen gas diluted by the nitrogen. It is invisible and has no taste nor smell. Its specific gravity is little more than 1, if that of water be accounted 1000. It supports both respiration and combustion. The ingredients of which the atmosphere is composed, when combined in different proportions, compose substances possessing very different properties. Thus in one proportion,—viz. 2½ volumes of oxygen to 1 of nitrogen, they compose *nitric acid*, well known by the name *aqua-fortis*, a substance of a very corrosive and most deadly poisonous nature. In equal volumes the ingredients form *nitric oxide*, which is fatal to animal life, and extinguishes flame. Two volumes of nitrogen and one of oxygen form *nitrous oxide gas*, a substance remarkable for its intoxicating qualities, and hence called *intoxicating gas, laughing gas*, or *gas of paradise*.

This gas, when inhaled, operates differently upon persons of different constitutions. The sensations produced by it are in general described as exquisitely pleasing—an irresistible propensity to laughter—a rapid flow of vivid ideas—a strong incitement to muscular action—joined to a singular thrilling in the ears, fingers and toes. Persons who inhale this gas, in place of feeling the debility consequent upon imbibing other intoxicating substances, generally describe themselves as more cheerful and light-spirited during the whole of the day.

COMPONENT PARTS OF WATER.

Water, as well as air, has only of late years been known as a compound body. For this discovery we are indebted to the labours of Cavendish and Watt, who showed that it is composed of two gases, *Hydrogen* and *Oxygen*. In order to form water, these ingredients are combined in the proportion of about two volumes of hydrogen gas to one of oxygen. We have had occasion to notice oxygen in considering the atmosphere; we shall now consider the leading qualities of hydrogen gas. *Hydrogen* gas is invisible, and has no taste. When quite pure, it has no smell, but when humid, emits a slight odour. It is the lightest substance which has ever been weighed, being, when pure, upwards of a dozen times lighter than the atmosphere. Hence air balloons used always to be filled with it; but of late, one of its compounds, called *carburretted hydrogen*, (the same which is now employed for lighting the streets of towns) has been used for this purpose, because it can be easily had at gas works. Hydrogen neither supports respiration nor combustion, so that, if an animal or a burning candle be immersed in it, the former soon dies and the latter is extinguished. You will hardly, however, expect to learn, that this substance, which forms by far the larger ingredient of water, is itself, by means of oxygen, so highly inflammable, as to have been originally known by the name of *inflammable air*. It kindles when an ignited body is applied to it in contact with the air; when mixed with twice its bulk of atmospheric air, it explodes when kindled; and if mixed with pure oxygen gas, in the same proportion, the explosion is still more violent. Hydrogen is often collected in mines, forming what is called fire-damp, and, by its awful explosion, proves destructive to the miners. WATER, which is the result of the combination of the two gases above mentioned, is a non-elastic fluid, colourless, tasteless, and inodorous. It is seldom to be found entirely pure and free from mixture. The purest which is to be had, is rain or snow water. Its combinations with other substances are very numerous, but only in a small proportion of them does it act with much energy, so as materially to alter the qualities of the bodies with which it combines.*

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* The preceding section, though compiled from various sources, has been derived chiefly from Instructive Extracts, "by the Author of the Edinburgh Sessional School Books." But as that work contains many references and illustrations inapplicable to this country, it was found necessary both materially to alter and abridge.

ON THE AGENCY OF WATER AS CONNECTED WITH HEAT.

Let us now attend a little to the powers and qualities by which water acts its part, in this system of beings. We all admire its pure transparency in a spring; the level and polished surface with which it reflects objects that are on the banks of a lake; the mobility with which it runs along the channel of a brook, and the incessant motion of its waves in a stormy sea. But, when viewed with a philosophic eye, it appears much more an object of admiration. The same water which, under its usual form, is such a principal beauty in the scene of nature, is employed in her most extensive operations, and is necessary to the formation of all her productions. We know that it rises in vapours from the surface of the ocean, to form the clouds, and to descend again in rain upon the dry land, and give origin to springs, rivers, and lakes; or, upon proper occasions, to form deep snow, which protects the ground and vegetables from the intense cold to which some parts of the world are exposed; and, after it has performed this useful office, it readily yields to the heat of summer, and returns to a state in which it serves the same purposes as rain. By its fluidity and tenuity, it penetrates the soil, and the seeds of plants, which that soil contains. These it causes to swell and germinate into plants, which depend on water for support. It passes with freedom and ease through all their minutest tubes and vessels, and carries with it materials necessary for nourishment and growth, or changes its appearance so as to become part of the plant. There is no plant or vegetable substance that does not contain, in its composition, a large quantity of water, easily separable from it. The hardest wood contains a great deal. The softer and more succulent parts of vegetables, are almost totally composed of it. It is plainly as necessary to the animals, and is found to be as copious an ingredient in the composition of their bodies, and of all the different parts of them. These are the numerous and extensive uses of this beautiful substance. But in this succession of forms and operations, which it undergoes, you will perceive that it is set in motion and adapted to these ends, by the nice adjustment and gentle vicissitudes of heat and cold, which attend the returns of day and night, and summer and winter; and that even the form, under which it plays its part, depends on the action of heat. Were our heat to be diminished, and to continue diminished a degree not very far below the ordinary temperature, the water would lose its fluidity, and assume the form of a solid hard body, totally unfit for the numerous purposes which it serves at present. And if the diminution of heat were to go still farther, the air itself would lose its elasticity, and would be frozen to a solid useless matter, like the water; and thus all nature would become a lifeless, silent, and dismal ruin. Such being the important part allotted to water, in the magnificent series of natural operations, in consequence of the qualities communicated to it by heat, all its properties become interesting objects of contemplation to a sensible heart. On the other hand, were the heat which at present cherishes and enlivens this globe, allowed to increase beyond the bounds at present prescribed to it, besides the destruction of all animal and vegetable life, which would be the immediate and inevitable consequence, the water would lose its present form, and assume that of an elastic vapour like air; the solid parts of the globe would be melted and confounded together, or mixed with the air and water in smoke and vapour, and nature would return to the original chaos.

Black.

A BRIEF OUTLINE OF THE BRITISH CONSTITUTION.

The Government of the United Kingdom of Great Britain is constitutional, or possesses a regular form, in which the civil rights of all classes is acknowledged and guaranteed. The constitution is a monarchy, in which the Sovereign accepts of his dignity under an express agreement to abide by certain prescribed forms of government according to the laws of the realm, and to maintain inviolate the Protestant religion, with all the rights and privileges of the church.

The executive or regal office is, on certain conditions, hereditary in the family of Brunswick, now on the throne, and in the person of either a male or a female; but the right of inheritance may be changed or limited by Act of Parliament. "Although the

Sovereign," says Lord Bacon, "is the fountain of justice, and is entrusted with the whole executive power of the law, yet he hath no power to change or alter the laws which have been received and established in these kingdoms, and are the birthright of every subject; for it is by those very laws that he is to govern." The King owns no superior but God in the laws; it is a maxim of the constitution, that the King, in his political capacity, can do *no wrong*, because he acts only by officers responsible to the law. If an unlawful act is done, the minister instrumental in that act is alone obnoxious to punishment. The King *never dies;* that is, the executive authority never ceases to exist. Besides enforcing the laws of the realm, through the medium of courts of justice, and a variety of functionaries, the Sovereign is charged with the office of levying taxes granted for the public service, and of defending the empire at home or abroad against foreign enemies. He has the power of coining money, but he cannot alter the standard. He is the sole representative of his people with foreign states, having the power of sending ambassadors, concluding treaties and alliances, declaring war or concluding peace. He has the duty of protecting the persons and trade of British subjects in foreign countries. For this purpose he has the sole appointment of the officers who perform these duties; of judges in the several courts of law; of officers in the army and navy; of public ambassadors, and of consuls at foreign ports for the safety of trade; and of the officers who levy the taxes. The King or Queen (with reference to our present Sovereign) is the fountain of mercy; she alone can pardon all public offences, either absolutely or conditionally; and of honour, as the constitution has intrusted her with the sole power of conferring titles, dignities, and honours. As first magistrate of a great and free people, the Sovereign is invested with many other marks of regal dignity and pre-eminence, all intended by the constitution to be employed for the good of the people.

The task of managing all these extensive concerns, which would fall into confusion in the hands of one person, is deputed by the Queen to a number of persons, who are denominated her *Ministers*, and sometimes the *Cabinet*. They are nominally selected and appointed by the Queen herself; but as her choice would be in vain, if it were to fall on men who were disagreeable to Parliament (which might in that case refuse to grant supplies for national business), the ministry is generally chosen from among such men as enjoy a considerable share of public confidence. They have all some high state office.

The *Legislative* part of the government is composed of two deliberative bodies—the House of Lords, and the House of Commons—both of which consist of individuals belonging to the United Kingdom only, the colonial dependencies of the empire having no share in the general government.

House of Lords.—The persons who compose the House of Lords form a separate class or rank, which is called collectively the *Peerage*, and whose members enjoy certain privileges and honours. The members of the House of Lords are either lords spiritual or temporal. The spiritual lords are archbishops and bishops, and hold their seats in virtue of their office; the temporal lords enjoy their seats from hereditary right, or in virtue of being elevated to the peerage. In 1837, at the meeting of the first Parliament of Queen Victoria, the number of members of the House of Lords was 641. The House of Lords is liable at all times to an increase of numbers by the elevation of commoners to the peerage; but this prerogative of the crown is sparingly used.

The *House of Commons* consists of 658 members; of whom 223 are chosen by counties, 6 by universities, and 339 by cities, boroughs, and towns. England returns 471, Wales 29, Ireland 105, and Scotland 53. The great bulk of voters as settled by the reform acts of 1832, is composed of the agricultural tenantry and the occupants of houses of £10 of yearly rent; in other words, the middle classes. A House of Commons cannot legally exist for more than seven years; but, in reality, it rarely exists so long, the death of the sovereign, change of ministry, and other circumstances, causing a renewal on an average every three or four years. Though delegated by particular places, they are bound as members of parliament to act for the general good of the country. Their principal duties are to check and reform abuses of the administration

—to redress public and private grievances—to watch over the public expenditure—to enforce by their power of enquiry and impeachment a pure administration of justice in all departments—to assist in framing wise laws—and, finally, to preserve and promote, by every constitutional means, the freedom and prosperity of the great body of the people. The powers and privileges of this part of the Legislature are commensurate to its great importance in the government. The Commons possess the sinews of war; they are the keepers of the public purse; all grants, subsidies, and taxes, must originate with them; for it is a constitutional maxim, that taxation and representation go hand in hand; and that the people only have a right to tax themselves. They have a strong control over the Executive, having it in their power, whenever they are dissatisfied with the measures of government, to stop the supplies of money, and bring the whole machinery to a stand. No act of the two deliberative bodies becomes valid as a law, without the assent of the Sovereign. Though new laws may be proposed by any member of either House, the consent of all the three constituent parts is thus necessary to make them binding on a subject: and though any part of the Legislature may, by withholding its consent, prevent the enactment of a law, it requires the agreement of all the three to repeal an existing statute.

"Thus," as observed by Blackstone, "the true excellence of the British government consists in all its parts forming a mutual check on each other. The Legislature cannot abridge the executive power of any rights it now has by law, without its own consent. The people are a check upon the nobility, and the nobility are a check upon the people, by the mutual privilege of rejecting what the other has resolved; while the monarch is a check upon both; which preserves the executive power from encroachment. And this very executive power is again checked and kept within due bounds by the two Houses, through the privilege they have of inquiring into, impeaching, and punishing the conduct, not indeed of the king, (which would destroy his constitutional independence,) but, which is more beneficial to the public, of his evil and pernicious counsellors. The same laws that secure to the king his crown and prerogative, secures to the meanest subject those rights which are emphatically styled the birthright of Britons. These are principally the right of personal *security*, of personal *liberty*, and of private *property*."

Constitution of Canada.—Since Canada was conquered by the arms of Britain in 1759, and permanently annexed to the empire, it has been under various modes of government. Without particularly tracing its history in this respect with regard to the past, it will be sufficient to observe, that during the ministry of Mr. Pitt in 1784, a desire long increasing was now strongly expressed, of obtaining a representative government. This boon was granted in 1790, on a basis nearly resembling that of the British Constitution. So much so indeed that it has been often said in the words of Governor Simcoe, to be "the image and transcript of it." Within this last four years, such changes have been introduced into the practical working of the representative system, as to assimilate it still more nearly to that of the mother country. To remove the political disorders which had for many years existed, "it needs," said Lord Durham, "but to follow out consistently the great principles of the British Constitution, and introduce into the Government those wise provisions, by which alone the working of the representative system can in any country be rendered harmonious and efficient." In like manner the House of Assembly declared, in a resolution passed in 1841, "that the Head of the Executive Government of the Province, being within the limits of his Government, the Representative of the Sovereign is responsible to the Imperial authority alone, but, that nevertheless the management of our local affairs can only be conducted by him by and with the assistance, counsel, and information of subordinate officers in the Province.

"That in order to preserve between the different branches of the Provincial Parliament that harmony which is essential to the peace, welfare, and good government of the Province, the chief advisers of the Representative of the Sovereign, constituting a Provincial Administration under him, ought to be men possessed of the confidence of the Representatives of the people, thus affording a guarantee that the well understood wishes and interests of the people, will on all occasions be faithfully represented and advocated."

The Legislature of Canada consists of two bodies, the Legislative Council, the members of which are elected by the Governor, and exercise the functions of the House of Lords in Great Britain. This body has the power to alter, and even to reject bills sent up from the lower House; they can also originate bills which, however, must pass the ordeal of the other body, the House of Assembly. The latter body corresponds to the British House of Commons, and is elected by the Province upon a moderate freehold qualification.

The course of justice in criminal concerns is founded upon the equitable principles of the law of England.

Compiled.

[illegible]

APPENDIX.

PREFIXES AND AFFIXES.

TO BE COMMITTED TO MEMORY.

I. PREFIXES.

1. OF ENGLISH OR SAXON ORIGIN.

A, *on* or *in*, as *a*-foot, *a*-bed.

Be, *about*, as *be*sprinkle; also *for* or *before*, as *be*speak. En, *in* or *on*, as *en*circle; also *make*, as *en*feeble. (*En* is changed into *em* in roots beginning with *b* or *p*, as *em*bark, *em*power.)

Fore, *before*, as *fore*see.

Mis, *error* or defect, as *mis*deed.

Out, *beyond*, or *superiority*, as *out*run.

Over, *above*, or *excess*, as *over*charge.

Un, before an adjective or adverb, signifies *not*, as *un*worthy; *un*, before a verb, signifies the *undoing* of the act expressed by the verb, as *un*fetter.

Up, *motion upwards*, as *up*start; also *subversion*, as *up*set.

With, *from* or *against*, as *with*draw, *with*stand.

2. OF LATIN ORIGIN.

A, ab, abs, *from* or *away*, as avert, *ab*stain.

Ad, *to*, as *ad*here. *Ad*, assumes the various forms of a, ac, of, ag, al, an, ap, ar, as, at, as *a*scend, *ac*cede, *af*fix, *ag*gressor, *al*liance, &c.

Am, *round*, *about*, as *am*bient.

Ante, *before*, as *ante*cedent.

Circum, (circu,) about, *round*, as *circum*jacent, *circu*it.

Cis, on this side, as *Cis*alpine.

Con, *together* as *con*voke. Or under the forms of co, cog, col, com, cor, as *co*-operate, *col*lect &c.

Contra, *against* as *contra*-dict.—Also as *counter*, as *counter*-balance.

De, *from*, or *down*, as *de*jected.

Di, dis, (dif) *asunder*, as *dis*tract, *dif*fuse. Also *negation*, or *un*-*doing*, as *dis*arm.

Ee, ex, (ec, ef,) *out of*, *e*gress, *ec*centric, *ef*flux.

Extra, *without, beyond,* as *extra*vagant.

In, (ig, il, em, im, ir,) *not,* before an adjective, as *in*active; before a verb, it signifies *in* or into, as *in*ject, *im*bibe; *In* also denotes *privation* or *negation,* as *in*sipid, *ig*norant.

Inter, *between* or *among,* as *inter*vene.

Intro, (for intru,) *within;* as *intro*duce.

Juxta, *nigh to,* as *juxta*position.

Ob, (oc, of, o, op, os,) *in the way of,* or *opposition,* as *ob*ject, *oc*cur, *of*fend, *op*pose, &c.

Per, *through* or *thoroughly,* as *per*forate. (Per has also the form of *pel,* as *pel*lucid.)

Post, *after,* as *post*script.

Pre, *before,* as *pre*cede, *pre*dict.

Preter, *past,* or *beyond,* as *preter*natural.

Pro, *for, forth,* as *pro*noun, *pro*ceed.

Re, *back* or *again,* as *re*tract.

Retro, *backwards,* as *retro*spect.

Se, *aside* or *apart,* as *se*cede.

Sine, *without,* as *sine*cure. Or in the forms of *sim,* and *sin,* as *sim*ple, *sin*cere.

Sub, (suc, suf, sug, sup, sus,) *under,* as *sub*vert, *suc*ceed, *suf*fuse, &c.

Subter, *under* or *beneath,* as *subter*fuge.

Super, *above* or *over,* as *super*visor. (*Super* takes also the French form *sur,*) as *sur*mount.

Trans, (tra,) *over, beyond,* as *trans*port.

Ultra, *beyond,* as *ultra*mundane.

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3 OF GREEK ORIGIN.

A or an, *without, not,* as *a*pathy, *an*archy.

Amphi, *both,* or the *two* as *amphi*bious; Also *about,* as in *amphi*theatre.

Ana, *through* or *up,* as *ana*tomy.

Anti, (ant,) *against,* as *Anti*-Christ; *ant*arctic.

Apo, *from, away,* as *apo*stacy.

Dia, *through,* as *dia*meter.

Epi, *upon* (ep, eph) as *epi*demic, *eph*emera.

Hyper, *over and above, too,* as *hyper*critical.

Hypo, *under,* as *hypo*thesis.

Meta, *change,* (*met,*) as *meta*morphosis, *met*hod.

Para, *near to,* or *side by side as if for the purpose of comparison,* as *par*allel; (*para* takes also the form of *par*) as *par*ody.

Peri, *round, about,* as *peri*phrasis.

Syn, *together,* as *syn*thesis, (*sy, syl, sym,*) as *syl*logism, *sym*pathy.

II. AFFIXES.

An	an agent, or *one who does a thing*	as Comedi*an*
Ant *or* ent		Assist*ant*, Stud*ent*
Ar		Li*ar*
Ard		Drunk*ard*
Ary		Advers*ary*
Eer		Chariot*eer*
Er		Build*er*
Ist		Psalm*ist*
Ive		Representat*ive*
Or		Govern*or*
Ster		Game*ster*
Ate	denotes the *person acted upon*, and equivalent to the passive termination *ed*	as Deleg*ate*
Ee		Trust*ee*
Ite		Favour*ite*
Acy	denoting quality or state of being	as Lun*acy*
Age		Parent*age*
Ance		Vigil*ance*
Ancy		Brilli*ancy*
Ence		Adher*ence*
Ency		Consist*ency*
Hood	denoting quality or state of being	as Boy*hood*
Ion		Cohes*ion*
Ism		Hero*ism*
Ment		Abase*ment*
Mony		Acri*mony*
Ness		Bald*ness*
Ry		Rival*ry*
Ship		Lord*ship*
Th		Warm*th*
Tude		Servi*tude*
Ty *or* ity		Pover*ty*, brev*ity*
Ure		Legislat*ure*
Y		Master*y*
Dom	denoting *jurisdiction*	as King*dom*
Ric		Bishop*ric*
Cle		or Carpus*cle*
Kin		Lamb*kin*
Let		Stream*let*
Ling		Duck*ling*
Ock		Hill*ock*

Ac	*of, or pertaining to*	**as Elegi*ac***
Al		**Autumn*al***
An		**Sylv*an***
Ar		**Pol*ar***
Ary		**Parliament*ary***
En		**Gold*en***
Ic *or* ical		**Angel*ic* or Angel*ical***
Ile		**Infant*ile***
Ine		**Infant*ine***
Ory		**Olfact*ory***
Ate	denoting *full of*, or *abundance*	**as Affection*ate***
Ful		**Care*ful***
Ose		**Verb*ose***
Ous		**Zeal*ous***
Some		**Toil*some***
Y		**Flower*y***
Ish	denoting *likeness*	**as Child*ish***
Like		**God*like***
Ly		**Man*ly***
Ate	denoting *to make*	**as Perpetu*ate***
En		**Hard*en***
Fy		**Puri*fy***
Ish		**Stabl*ish***
Ise or Ize		**Modern*ise*, civil*ize***
Escent	denoting *progression*	**as Conval*escent***
Ly	*like* in quality	**as Tru*ly***
Ward	*in the direction of*	**as Down*ward***

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ngelical

civilize

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